



Ohaus Corporation

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07932-0900

THE CHAMP™ BENCH SCALE
Washdown

Instruction Manual





Unauthorized changes or modifications to this equipment are not permitted. See manual for replacement parts.

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.

This Class A, digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.



ra-

This device corresponds to requirements stipulated in 90/384/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. The device may have to be switched on again.

Cet appareil correspond aux exigences selon la norme 90/384/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; le cas échéant, il est nécessaire de le remettre en marche.

Dieses Gerät entspricht den Anforderungen nach 90/384/EWG und ist funktentstört 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, ggfs. ist ein Wiedereinschalten erforderlich.

CLASSIFICATIONS The I20W has been tested and found to comply with the following standards:

- National Institute of Standards and Technology Handbook 44 Class III and IIIL

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Chapter 1

Introduction and Installation

This chapter contains the following information:

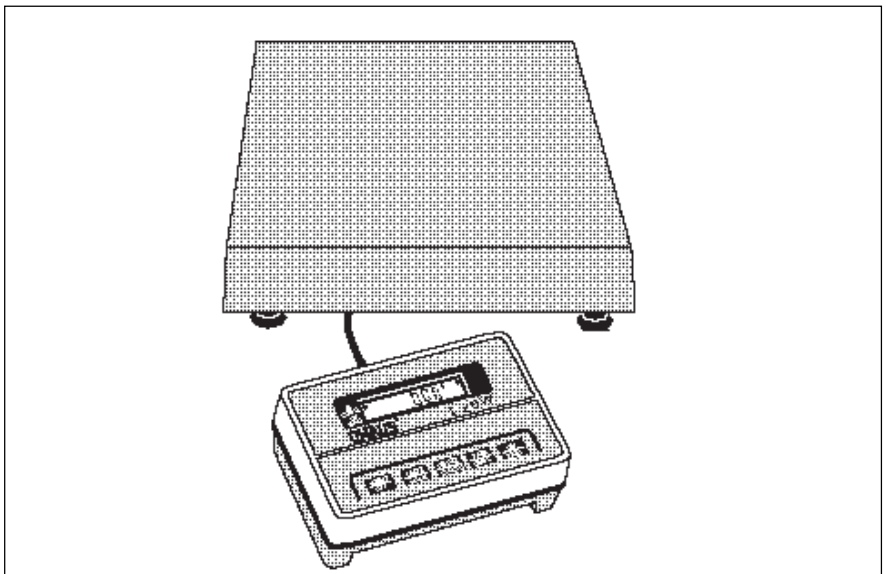
- Introduction and description.
- Unpacking the Bench Scale.
- Power connections.
- Attaching the Brackets
- Leveling the Scale Base.

Introduction

This manual covers installation, operation, maintenance and troubleshooting information for The Champ™ Bench Scale, Models B10AS20, B25AS20, B50AS20, B100AS20, B150AS20 and B250AS20. To ensure proper operation of the Bench Scale, please read this manual completely.

Description

The Champ™ Bench Scale is a rugged, reliable unit consisting of a Weight Indicator (Model I20W) and a Scale Base (Model B10AS, B25AS, B50AS, B100AS, B150AS or B250AS). The Indicator is constructed of polycarbonate engineering plastic. The Scale Base consists of a stainless steel platform and structure and an aluminum load cell. The Bench Scale operates in pounds, kilograms and pounds:ounces. Six models are available with weight capacities of 25, 50, 100, 200, 300, 500 lbs/10, 25, 50, 100, 150, 250 kg and are calibrated to a maximum resolution of 1:30,000. The Bench Scale system operates from six Alkaline or NiCad rechargeable "C" batteries and can also be powered externally using the AC adapter supplied. A five and a half digit backlit LCD display which is 0.6 inches/1.5 centimeters in height provides easy visibility when working at distances from the Indicator and in low light conditions. Five switches mounted on the front panel enable simple operation of on, off, zero, tare, units and print functions. A built-in RS232 Interface allows printing of results through an external device. The Bench Scales are completely assembled, calibrated and ready for operation. The system can deliver 1:5000 NTEP approved performance but is factory set to higher non legal for trade resolutions. See the Specifications table on pages 61 and 62 for details.



The Champ™ Bench Scale

Unpacking

Unpack the Bench Scale at the installation site and verify that the following items were included in the carton:

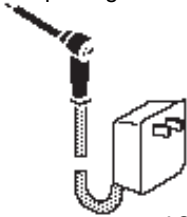
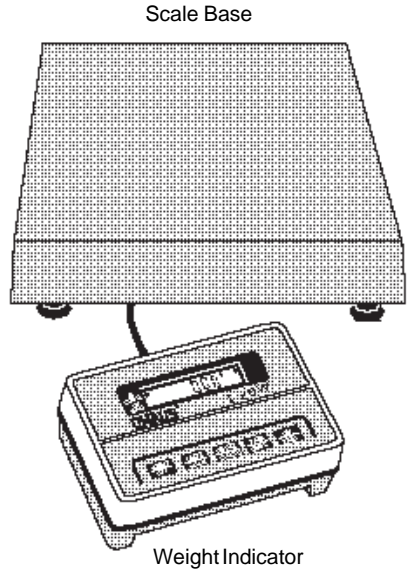
- I20W Weight indicator
- Scale Base
- AC Adapter
- Two mounting brackets
- Accessory kit including:
 - 2 lead and wire seals
 - 1 screwdriver
 - 5 capacity labels
 - Warranty card
 - Instruction Manual



IMPORTANT!

Remove the shipping screws located on the top and bottom of the Ohaus Scale Bases. Refer to figures of Scale Bases on page 8.

NOTE: It is recommended to save the carton and packing material for storing and/or transporting the indicator.



AC Adapter



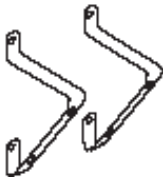
Capacity Labels



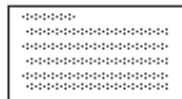
Lead and Wire Seal



Screwdriver



Mounting Brackets



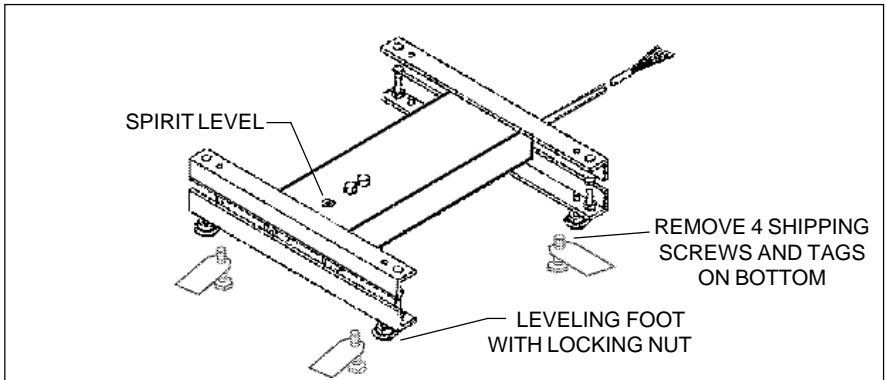
Warranty Card

Leveling the Scale Base

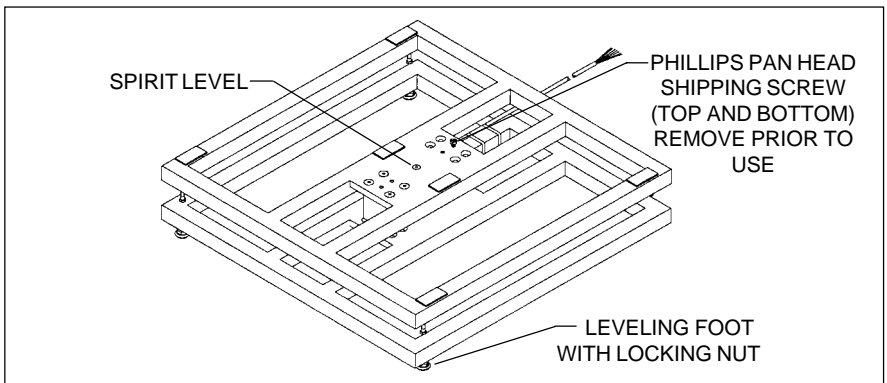
1. Place the Bench Scale in the intended use location on a stable, level surface.
2. Remove the Platform from the top of the Scale Base to expose the circular Spirit Level mounted on top of the structure. See illustration.
3. If the bubble is not centered in the scribed circle of the Spirit Level, loosen the Locking Nuts and adjust the Leveling Feet, either by hand or using an open ended wrench, until the bubble is centered.

NOTE: The Scale Bases are equipped with Leveling Feet which have provisions for using a wrench. The Scale Base can be leveled without raising it to gain access to the Leveling feet.

4. Tighten the locking Nuts and replace the Platform.



12" X 12" and 18" x 18" Scale Base (Platform Removed)



24" X 24" Scale Base (Platform Removed)

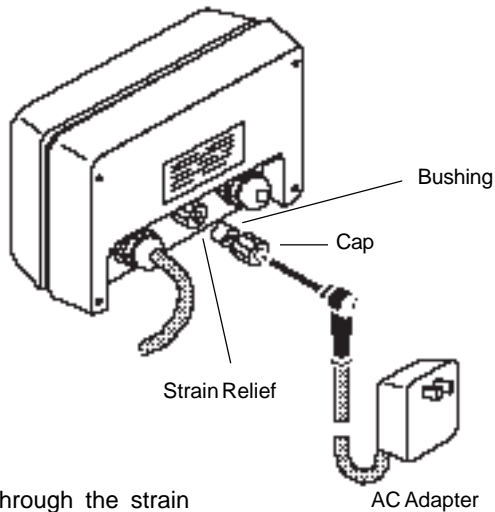
Power Options

The Bench Scale may be operated using the AC Adapter supplied, or six Alkaline or NiCad rechargeable “C” batteries (not supplied).

AC Adapter

Connect the AC Adapter plug through the strain relief as follows:

1. Remove the cap and black bushing from the strain relief in the center access hole on the rear cover of the Weight Indicator. If a yellow nylon ring has been included inside the cap, discard it.
2. Slide them completely over the plug of the adapter.

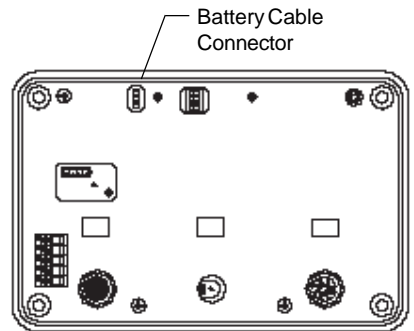
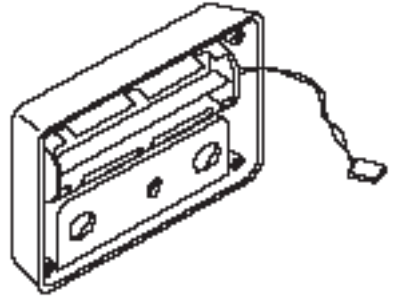


3. Pass the plug through the strain relief into the AC Adapter Receptacle.
4. Tighten the cap onto the strain relief.
5. Plug the Adapter into a convenient AC outlet.

Battery Operation

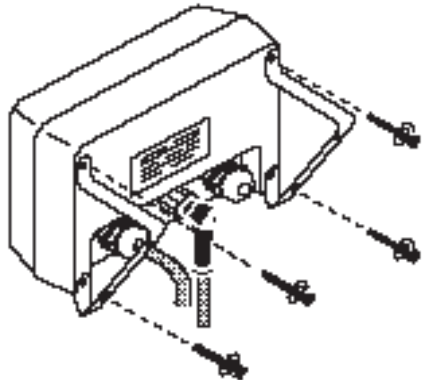
The battery holder is located inside the rear cover of the Weight Indicator. To install or change batteries:

1. Remove the four phillips head screws and washers at the rear of the Weight Indicator.
2. Place six Alkaline “C” batteries into the battery holder orienting the plus (+) and minus (-) ends as indicated on the holder.
3. Be sure that the battery cable connector is connected to the three pin battery receptacle. The connector may be plugged in either way.
4. Replace the rear cover. Be sure the O-ring is properly seated around the red center chassis and coated with Silicon grease to assure a water tight seal.



Attaching the Brackets

1. Remove the four phillips head screws and washers at the rear of the Weight Indicator.
2. Position the mounting brackets on the unit as shown in the diagram.
3. Install the four phillips screws and washers to secure the cover and brackets.



Chapter 2

Operation

Once the Bench Scale is properly located, you can perform weighing operations.

This Chapter describes how to perform weighing, check weighing and printing functions.

Turning the Bench Scale ON

Turn the Bench Scale ON by pressing the ON/ZERO button on the front panel.






When first turned on, all display segments and enabled indicators will light briefly, and then clear. The display will then show a zero reading.



Display Indicator Functions

	Lights when scale is at center of zero
<i>bat</i>	Indicates low battery condition
	Indicates negative value
<i>lb</i>	Lights to indicate current weighing unit is pounds
<i>kg</i>	Lights to indicate current weighing unit is kilograms
<i>lb:oz</i>	Lights to indicate current weight unit is pounds:ounces
	Indicates displayed value is a percentage
OVER	Lights to indicates weight is above the set limit
UNDER	Lights to indicate weight is below the set limit
ACCEPT	Lights to indicate weight is at the set limit
NET	Lights to indicate displayed weight is a net weight. If NET is not lit, displayed weight is a gross weight.

Front Panel Button Functions

	OPERATING MODE		SETUP MODE	
			Program Constants Menu	Program Options Menu
	<ul style="list-style-type: none"> • Turns Bench Scale ON • Rezeroes display 	<ul style="list-style-type: none"> • Turns all digits ON or resets to initial value 	<ul style="list-style-type: none"> • Accesses Averaging Level • Turns all digits ON or resets to initial value 	
	<ul style="list-style-type: none"> • Tares weight on Scale Base • Accesses Setup Mode (extended press) 	<ul style="list-style-type: none"> • Accesses Calibration (extended press) • Enters displayed value, continues to next entry • Exits setup mode saving all settings. Returns to weighing mode 	<ul style="list-style-type: none"> • Enters displayed value, continues to next entry • Exits setup mode saving all settings. Returns to weighing mode 	
	<ul style="list-style-type: none"> • Switches display between gross and net weight 	<ul style="list-style-type: none"> • Accesses Program Constants menu • Shifts cursor to next character on display when entering numeric values 	<ul style="list-style-type: none"> • Shifts cursor to next character on display when entering numeric values 	
	<ul style="list-style-type: none"> • Changes displayed weighing unit/mode 	<ul style="list-style-type: none"> • Increments numeric values by 1 • Scrolls through options for current menu item 	<ul style="list-style-type: none"> • Accesses Unit Selection • Scrolls through options for current menu item 	
	<ul style="list-style-type: none"> • Outputs displayed data via RS232 interface • Turns Bench Scale OFF (extended press) 	<ul style="list-style-type: none"> • Re-displays current entry name 	<ul style="list-style-type: none"> • Accesses Timer/RS232 settings • Re-displays current entry name 	

Calibration Check


Before using the Bench Scale, calibration should be verified. The Bench Scale has been calibrated before shipment, however, calibration is influenced by factors such as:

- Variations in the Earth's gravitational field at different latitudes of the world.
- Variations in the Earth's gravitational field at different altitudes.
- Rough handling.
- Changes in work location.

Refer to Chapter 3 Calibrating and Customizing the Bench Scale for the calibration procedure.

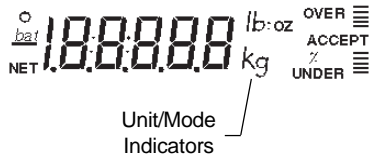
Weighing, Check Weighing and Printing

Selecting a Weighing Unit


To select one of the available weighing units for use, repeatedly press  until the desired indicator appears on the display. The weighing units were set at the factory as shown in the table at the right.

If the desired indicator does not appear, refer to *Unit Selection* in Chapter 3.

Factory Default Settings	
lb	ON
kg	ON
lb:oz	ON
Over/Under	OFF





Weighing

1. Select the desired weighing unit.
2. If necessary, press  to obtain a zero reading on the display.
3. Place the object(s) to be weighed on the Scale Base.
4. Read the weight on the display.

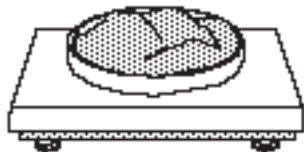
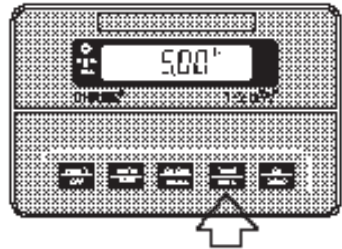
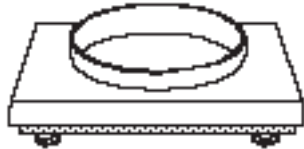
Taring


When weighing material or objects that must be held in a container, taring enables the indicator to save the container's weight in memory, and subtract it from the gross weight on the Scale Base.


1. Press  to obtain a zero reading on the display.
2. Place an empty container on the Scale Base and read its weight on the display.
3. Press  .

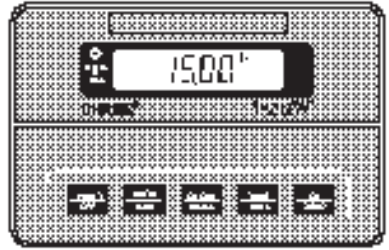
The display will show zero and the NET indicator will turn ON. The container's weight will be stored in memory.

4. Add the material to be weighed to the container. As material is added, its NET weight will be displayed.



5. To view the combined weight of the material and container (gross weight), press  .

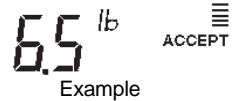
Repeatedly pressing  will cause the display to switch between the gross and net weight.



The combined weight of the material and container must not exceed the capacity of the Scale Base.

Check Weighing

This feature may be used for Check weighing or Package weight control in any one of the available weighing units. When operating in this mode, the display will indicate whether the displayed value is over, under, or within acceptable weight limits. The bar graph indicates how close the displayed weight is to the acceptable weight limits.





Selecting Over/Under Limits Values

To enter Limit values, the Rocker Switches must be changed and set as follows:


- Switch 2 OFF Setup disabled
- Switch 3 ON Limits enabled

Refer to "Access to Internal Switches and Adjustments" on pages 23 through 25 for explanation.











If limits are disabled (OFF), it is still possible to review the current Limit Values, however, they cannot be changed. To view the current limits, press and hold  until the display blanks and the annunciator turns on. Press  to review limits and return to weighing mode.


With Switch 2 OFF and Switch 3 ON, limits may be changed as follows:

1. Press  until the display blanks and the OVER/ACCEPT/UNDER Annunciators turn on.



If limits are disabled (OFF), pressing  will display the current values and return the I20W to the weighing mode.

2. Press  to select limits ON or OFF.
3. Press  to enter your selection.
4. Press  to select the weighing unit to be used for OVER/UNDER Limits.
5. Press  to enter your Unit Selection. The current UNDER Limit will now be displayed.
6. Press  to increment the Flashing Digit.
7. Press  to move the Flashing Digit.
8. Press  to reset the entire number.

9. When the UNDER LIMIT Value is satisfactory, press  to enter that value.
10. The current ACCEPT Limit will now be displayed. Repeat steps 6 through 9 of the procedure to change and enter the ACCEPT Limit.
11. The current OVER Limit will now be displayed. Repeat steps 6 through 9 of the procedure to change and enter the OVER Limit.



There must be a minimum difference of 5 scale divisions between UNDER and ACCEPT and between ACCEPT and OVER Limits.

The OVER/UNDER Bar Graph Display will be active ONLY for the weighing unit selected during the entry of Limit Values.

Printing

The RS232 interface may be used with a printer, computer or other output device. To output display data at any time,

press  .

For more information on printing and using the RS232 interface, refer to *RS232* parameters on pages 32 through 36 and *RS232 Interface* in Chapter 4.

Chapter 3

Calibrating and Customizing the Bench Scale

The Bench Scale has been set up and calibrated at the factory.

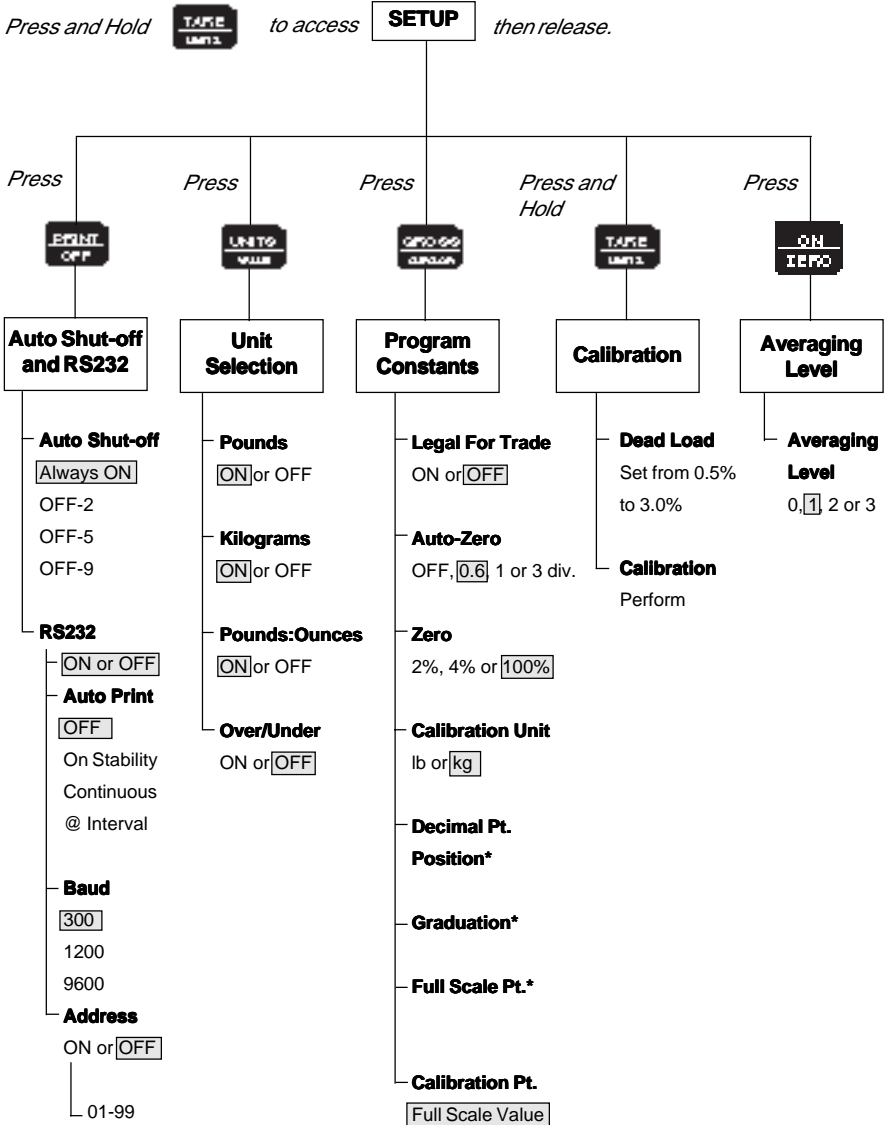
The Setup mode enables you to change menu parameters of the Bench Scale.

When you first install the Bench Scale, you may use the Setup mode to enter information about program options that will customize the Bench Scale for your specific requirements.

This Chapter explains how to:

- Calibrate the Bench Scale.
- Access and use the Setup sub-menu.

Bench Scale Menu Structure Chart



Setup Mode and Menu Structure

Programmable features of the Bench Scale are contained in “menus” which are accessed in the Setup mode. The chart on page 20 shows how these menus are structured.

To access the Setup mode:

Press and hold  until “SEtUP” is displayed, then release it.

SEtUP





If “SEtUP” is not displayed, refer to “Access to Internal Switches and Adjustments” on pages 22 through 24 for instructions.

To access a menu:



Refer to the chart on page 20 for the proper front panel button to press for the menu you wish to access.

Once a menu is accessed:

Repeatedly press  to display the parameters and their current settings.

Press  to re-display the parameter name.

Exiting the menu:

Repeatedly press  until “SEtUP” is displayed, then press  again to return to the weighing mode.

A2t parameter name

06 current setting

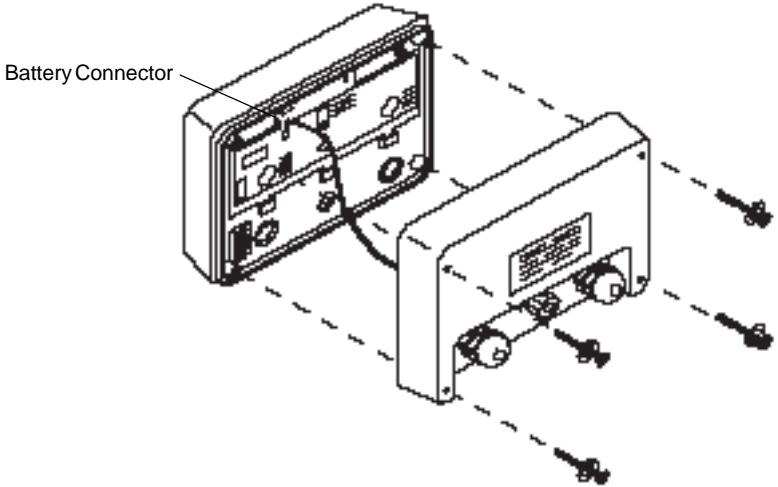
A2t press PRINT to re-display name

Locking Out the Setup Mode

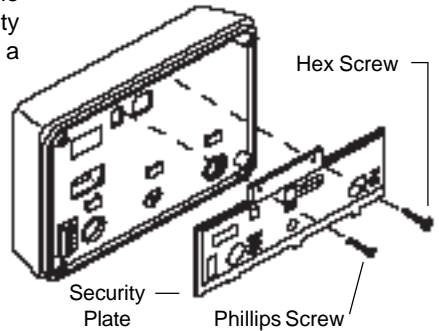
When you are finished with the Setup mode, Switch 2 can be set to OFF to prevent unauthorized programming or calibration.

Access to Internal Switches and Adjustments

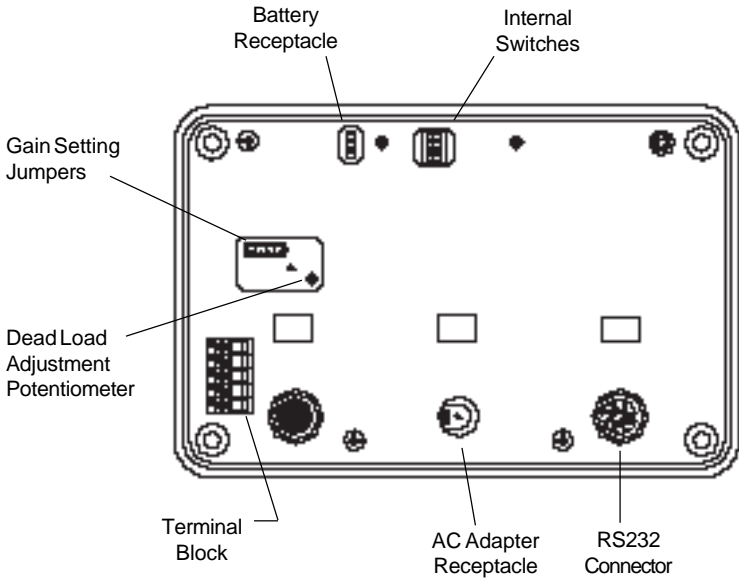
Using a phillips screwdriver, remove the four screws and washers which secure the rear cover and pull it away from the front of the Weight Indicator. Keep screws and washers on hand for re-assembly.



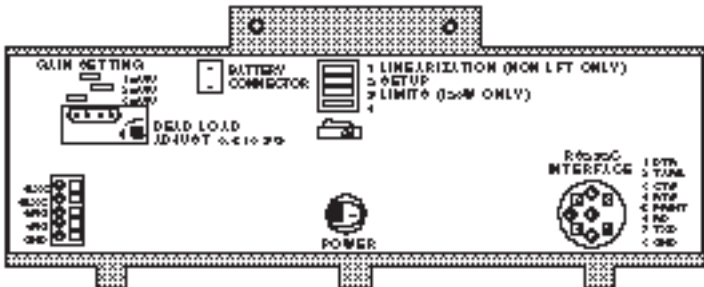
With the rear cover off, disconnect the battery connector. Remove the security plate using a 7/64" hex wrench and a phillips screwdriver.



With the security plate removed, the back of the Weight Indicator is exposed providing access to internal switches, the dead load adjustment potentiometer and the gain settings jumpers.

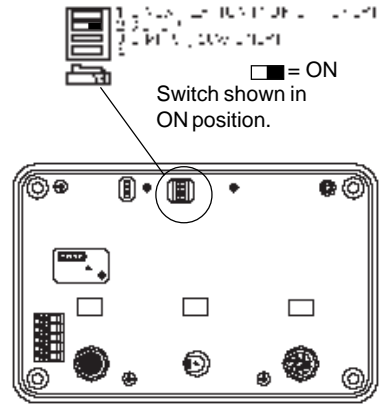


The label on the security plate contains diagrams for electrical connections, switches, jumpers, etc., and will be used as a reference throughout the calibration and/or customization process.



Internal Switch Functions

The internal switches which are accessed from the rear panel have the functions outlined in the following table:



SWITCH FUNCTION NUMBER	POSITION	DESCRIPTION
1	ON	Not Legal For Trade Applications: 3 Point Linear calibration
	OFF *	Legal For Trade Application 2 Point Span Calibration
2	ON *	Enables access to SETUP and CALIBRATION from the front panel or RS232 interface.
	OFF	Disables access to SETUP and CALIBRATION.
3	ON	OVER/UNDER Limits enabled. When enabled, the UNDER/ACCEPT/OVER limits can be changed. NOTE: SETUP Switch (#2) must be OFF to enable limits.
	OFF *	OVER/UNDER Limits disabled. Limit values can be reviewed but not changed.
4	ON	No function.
	OFF *	No function.

* Denotes factory setting.

Calibration

Before beginning calibration you will need to have the following items on hand:

- A calibration weight equal to the Calibration Point entered in the Program Constants menu. Refer to the table at right for the factory settings.
- If a linear calibration is performed, a weight equal to 1/2 of the Calibration Point is required
- The screwdriver which was provided.


MODEL	CALIBRATION POINT FACTORY SETTINGS
B10AS20	10kg
B25AS20	25kg
B50AS20	50kg
B100AS20	100kg
B150AS20	150kg
B250AS20	250kg
Calibration masses are available as accessories.	



A linear calibration is not available if Legal for Trade Applications (switch 1) is set ON.

Calibration Procedure

Make sure there is no load on Scale Base the platform.

1. Press and hold  to access the Setup mode.


Release  when "SETUP" is displayed.



If ""SETUP" is not displayed, refer to "Access to Internal Switches and Adjustments" on page 3-5 for instructions




If calibration data eg. full scale capacity, calibration point, etc. needs to be reviewed prior to calibration, refer to "Access the Program Constants Menu" on page 3-18 or the menu chart on page 3-2.

2. Press and hold  until "CAL" is displayed, then release it.

CAL

Dead Load Adjustment

3. When  is released, "dLOAD" will be displayed, then the current dead load setting.
4. If dead load is "good", then "CAL 0" will be displayed. Proceed to step 5.

dLOAD


Good

CAL 0

If dead load is displayed as a percentage, for example "dL3.5%", it must be adjusted to be between 0.5% and 3.0% as follows:

Using the screwdriver provided, turn the dead load adjustment potentiometer **clockwise to increase** or **counterclockwise to decrease** the displayed value.

dL 3.5 %

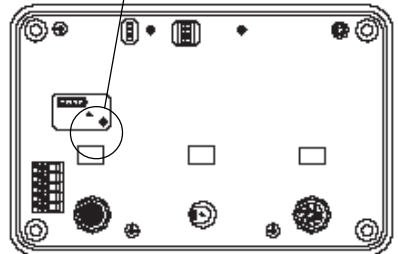
Press  to enter the dead load.



If deadload reads "ErrLo", turn potentiometer **clockwise** until percent sign (%) appears, then adjust between 0.5% and 3.0%.



Adjustment Potentiometer




5. When “CAL 0” is displayed, press



CAL 0

“buSY” will be displayed briefly followed by “CAL F” if 2 point calibration is being performed, or “CAL L” if 3 point linearization is being performed.


buSY

6. For 2 point calibration, place a mass equal to the Calibration Point on the Scale Base, then press  and proceed to step 9.

CAL F

or


CAL L

For 3 point linearization, place a mass equal to 1/2 the Calibration Point on the Scale Base, then press  and continue with step 7.

7. “buSY” will be displayed briefly, then “CAL F” will be displayed.

buSY

CAL F


8. Place a mass equal to the Calibration Point on the Scale Base, then press .

buSY

9. “buSY” will be displayed briefly, then “good”, then “SEtUP”.

good

When “SEtUP” is displayed, the Bench Scale is calibrated.

Press  to return to the weighing mode.

Changing Menu Parameters

The Bench Scale has features that you can customize for your specific requirements. They are accessed from the Setup mode and arranged in three menus:

- Averaging Level
- Unit Selection
- Auto Shut-Off Timer and RS232

These features may be changed at any time without having to recalibrate the Bench Scale.

Averaging Level

AL.


Averaging level compensates for vibration or excessive air currents on the Scale Base. During operation, the indicator continually takes weight readings from the load cell. Successive readings are then digitally processed to achieve a stabilized display. Using this feature, you specify how much processing you need.





Select one of four averaging levels using the adjacent table as a guide.




This feature does not affect the accuracy of the unit.

To view or change the averaging level:

1. Press and hold  to access the Setup mode.

Release  when "SETUP" is displayed.
2. Press  to access Averaging Level. The current Averaging Level setting will be displayed.
3. Repeatedly press  until the desired setting is displayed.
4. Press  to accept the displayed setting and return to the Setup mode.

To return to the weighing mode, press  when "SETUP" is displayed, or proceed to another program option.

A.L. 0	reduced stability; display will update every 200 milliseconds
A.L. 1*	normal stability; display will update every 200 milliseconds
A.L. 2	increased stability; display will update every 400 milliseconds
A.L. 3	maximum stability; display will update every 800 milliseconds

* Factory Default Setting.


AL. 0
AL. 1
AL. 2
AL. 3

Unit Selection


SEL

The Bench Scale permits you to display weight in pounds, kilograms, or pounds:ounces. To enable or disable various weighing units, use the following procedure.

Pounds, Kilograms and Pounds:Ounces




1. Press and hold  to access the Setup mode.

Release  when "SETUP" is displayed.

2. Press  to access Unit Selection.

First "SEL" will be displayed, then the pounds unit indicator along with its current status (On or OFF).

On ^{lb}
or
OFF ^{lb}

3. To change the status, press .
4. To accept the displayed status, press .
5. When  is released the next unit indicator (kilograms) will be displayed.

Set each indicator ON or OFF in the same manner.

UNITS		DEFAULT
lb	Pounds	ON
kg	Kilograms	ON
lb:oz*	Pounds:Ounces	ON
Over/Under		OFF


* Not available for Legal For Trade installations.

Auto Shut-Off Timer and RS232 Parameters


The automatic shut-off timer can be enabled to turn the Bench Scale off if it is idle for a specified period of time. Being idle means no switch depressions, weight changes or RS232 input.

The RS232 parameters enable you to configure the RS232 interface for communication with other devices such as printers, computers, etc.

To view or change these parameters:

1. Press and hold  to access the Setup mode.

Release  when "SETUP" is displayed.

2. Press  to access the Auto Shut-off/RS232 parameters.

Auto Shut-Off Timer

3. When  is released,

the words "Shut" then "OFF" will be briefly displayed, followed by the current timer setting.

The timer may be set to one of the selections in the adjacent table.






When enabled, the Auto Shut-Off feature functions on either battery or AC operation.

Shut
OFF





A_On*	disables auto shut-off; Bench Scale will remain on
OFF-2	Bench Scale turns off after 2 minutes
OFF-5	Bench Scale turns off after 5 minutes
OFF-9	Bench Scale turns off after 9 minutes


* Factory Default Setting

4. To change the setting, repeatedly press  until the desired setting is displayed.
5. Press  to accept the displayed setting and proceed to the RS232 parameters. To exit the menu, repeatedly press  and return to the weighing mode.

rS232

RS232 Parameters

6. When  is released, "rS232" will be displayed followed by its current setting (ON* or OFF).
* Factory Default Setting
7. To change the setting, press  until the desired setting is displayed.
8. Press  to accept the displayed setting. To exit the menu, repeatedly press  and return to the weighing mode.

If RS232 is set to OFF, the Bench Scale will return to the Setup mode when  is released.

If RS232 is set to ON, proceed with the following to set the parameters.


Auto Print

9. When  is released,

the words "Auto" then "Print" will be displayed followed by one of the settings in the adjacent table.

10. To change the setting, press



11. Press  to accept the displayed setting.

If On Stability was selected, continue with step 12.


If Interval was selected, proceed to step 15.


If Off or Continuous was selected, proceed to step 18.

Selecting On Stability - "StAb"

12. If "StAb" is selected, the words "ZEro" then "bAnd" will be displayed followed by the current setting, ON or OFF.

Selecting ON accepts the zero band and restricts transmission if the change in load is less than 10 divisions.

13. To change the setting press .

14. To accept the displayed setting, press  and proceed to Step 18.

Auto
Print

OFF
StAb
Cont
intEr

***Off:** disables Auto-Print; data is output only upon request

On Stability: data is output whenever Bench Scale changes from an unstable to stable condition

Continuous: data is output continuously; speed is based on baud rate

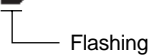
Interval: data is output at specified number of display updates; frequency of updates is the setting selected in averaging level

* Factory Default Setting

ZEro
bAnd


Selecting Interval - "IntEr"


15. If "IntEr" is selected, the current interval will be displayed with one digit flashing. The interval is shown in terms of display updates. "int10" means that data will be output every 10 display updates.


int 10
Flashing


The duration of display updates is determined in the averaging level option. For example, if averaging level is set to 1, the display is updated every 200 milliseconds. An interval setting of 10 would cause data to be output every 2 seconds.

16. To change the interval, use the front panel buttons as follows:

Press  to increment flashing digit(s).

Press  to shift to next digit.

Press  to reset display to original setting.


17. To accept the displayed setting, press .

Baud Rate

18. When  is released,

bAud





"bAud" will flash followed by the current baud rate setting. The factory default setting is 300. Baud rate may be set to 300, 1200 or 9600.

19. Repeatedly press  until the desired baud rate is displayed.

20. Press  to accept the setting.

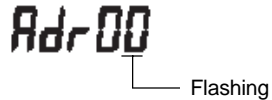
Address


Adr


21. When  is released, "Adr" will flash followed by its current setting, ON or OFF. OFF is factory default.
22. To change the status press .
23. To accept the displayed status, press .
24. If OFF is accepted, the display will return to the Setup mode.
25. If the address is set to ON, the current address will be displayed when  is released.


WHEN TO USE THE ADDRESS
 When multiple Bench Scales are used in a system where they share the same RS232 link, the address feature allows you to assign an identifying number to each unit. The number you assign will be sent along with other data when the indicator responds to a print command.


This will be a 2-digit number between 00 and 99 with the first digit flashing. To change the address, use the front panel buttons as follows:




Press  to increment flashing digit(s).

Press  to shift to next digit.

Press  to reset display to original setting.

26. When the desired address is displayed, press  to accept it and return to the Setup mode.

To return to the weighing mode, press  when "SETUP" is displayed, or proceed to another program option.

Changing Program Constants Menu Parameters

The Program Constants menu is used to view or change the parameters outlined in the following table. The table shows the sequence in which the parameters will appear on the display.


Program Constants Menu

SEtLt	sets Bench Scale for Legal for Trade/Type Approved operation
A2t	sets Auto Zero Tracking to Off, 0.6, 1 or 3 divisions
ZEro	specifies allowable percentage of max load that can be zeroed out
CALun	specifies the weighing unit that will be used for calibration (lb or kg)
dP	specifies position of decimal point for display
GrAd	specifies increment (graduation size: 1, 2, 5, 10, 20, 50) of calibration unit in which indicator will display weight
FS	specifies full scale capacity
CALPt	specifies the span calibration point

To access the Program Constants menu:

Press and hold  until "SEtUP" is displayed, then release it.

SEtUP

Press  to access the Program Constants menu.


prog


The display will flash "Prog", then "SEtLt", and then the current setting for the first parameter, Legal for Trade.



Legal For Trade

This parameter is used to configure the Bench Scale for Legal for Trade or non Legal for Trade use. Selecting “LFT” automatically sets certain parameters for legal for trade requirements, disables others, and limits overall display resolution to 1:5,000. Refer to Chapter 5 for additional information on Legal for Trade.

When you first access the Program Constants menu, the current setting for Legal For Trade will be displayed.

To change the setting, press  .

To accept the displayed setting and proceed to the next parameter (Auto Zero Tracking), press  .

To exit the Program Constants menu and store your settings, repeatedly press  until “SEtUP” is displayed, then press  again to return to the weighing mode.

SEtLEt

noLFt
or
LFt

Auto Zero Tracking


Auto Zero Tracking minimizes the effects of temperature changes and shift of the zero reading. Use this parameter to select a threshold level (in divisions) which the Bench Scale will consider to be a valid change in load.

Auto Zero Tracking occurs only when the display indicates zero regardless of the load on the Scale Base.





0.6 divisions is normally used for bench, counter and livestock scales; 3 divisions for vehicle axle load and railway scales; and 1.0 division for most other scales.

Auto Zero may be set to At (Off), 0.6, 1 or 3 divisions as follows:

1. Access the "AZt" parameter if it is not already displayed.
2. Press  until the desired setting is displayed.

To accept the displayed setting and proceed to the next parameter (Zero),

press .

To exit the Program Constants menu and store your settings, repeatedly press  until SEtUP is displayed, then press  again to return to the weighing mode.

AZt

At*	Turns feature OFF
0.6**	sets threshold to 0.6 divisions
1.0	sets threshold to 1.0 divisions
3.0	sets threshold to 3.0 divisions

* Not available for Legal For Trade installations.

** Factory Default Setting.

AZt (OFF)
0.6
1.0
3.0

Zero


Zero specifies the percentage of full capacity load (2%, 4% or 100%) that may be cleared by pressing ON/ZERO. Limits may be required in certain applications:

2E-r-0 %



2% Zero capacity is used for hopper scales or other large scales where an accidental zero would lose the current weight. Bench and counter scales normally use 100% Zero capacity.

To set Zero:


1. Access the "ZER0" parameter if it is not already displayed.
2. Press  until the desired setting is displayed.



100 %

2 %

4 %

(100 % is Factory Default Setting)


To accept the displayed setting and proceed to the next parameter (Calibration Unit), press .

To exit the Program Constants menu and store your settings, repeatedly press  until SETUP is displayed, then press  again to return to the weighing mode.

Calibration Unit

CALun

The Bench Scale may be calibrated using pounds or kilograms. Select the desired calibration unit as follows:


1. Access the "CALun" parameter if it is not already displayed.
2. Press  until the desired setting is displayed.



CALun^{lb}

or

CALun^{kg}


(kg is Factory Default Setting)

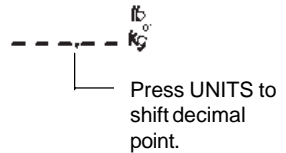
To accept the displayed setting and proceed to the next parameter (Decimal Point Position), press .


To exit the Program Constants menu and store your settings, repeatedly press  until SETUP is displayed, then press  again to return to the weighing mode.



Decimal Point Position

You may set the position of the decimal point for displayed weight readings as follows:

1. Access the “dP” parameter if it is not already displayed.
2. The current decimal point position will be displayed.
3. Repeatedly press  to move the decimal point to the desired position.



To accept the displayed setting and proceed to the next parameter (Graduations), press  .

To exit the Program Constants menu and store your settings, repeatedly press  until SEtUP is displayed, then press  again to return to the weighing mode.

Graduations**grAd**


This parameter specifies the divisions in which the last digit(s) of the display will increment. Graduations can be set to 1, 2, 5, 10, 20 or 50. The decimal point position set in the “dP” parameter will affect this setting.


For example:



Setting graduations to 2 with a decimal point position of 0000.0 will cause the Bench Scale to increment by 0000.2 divisions.

Setting graduations to 2 with a decimal point position of 00000 (no decimal places) will cause the Bench Scale to increment by 2 divisions.

To set graduations:

1. Access the “grAd” parameter if it is not already displayed.
2. Press  until the desired setting is displayed.

To accept the displayed setting and proceed to the next parameter (Full Scale Point), press .

To exit the Program Constants menu and store your settings, repeatedly press  until SEtUP is displayed, then press  again to return to the weighing mode.

1	display increments by 1's
2	display increments by 2's
5	display increments by 5's
10	display increments by 10's
20	display increments by 20's
50	display increments by 50's

Full Scale Point

FS


The maximum capacity of the Scale Base is entered for Full Scale Point using the same weighing unit selected for the Calibration Unit.



If Legal for Trade is selected, resolution will be limited. If you attempt to enter a full scale point that will yield a resolution greater than the limit, the display will flash "LFT", then "Err" (error), and return to the Graduations parameter. See Chapter 7 for resolutions specific to each model.

$$\text{Divisions} = \text{FS Pt} / \text{Graduations}$$


To enter the Full Scale Point:

1. Access the "FS" parameter if it is not already displayed.
2. The display will show the current full scale point with the first digit(s) flashing.
3. To change the flashing digit(s), repeatedly press  until the desired digit is displayed.


60000 lb
 Flashing



To shift to the next digit,

press  .

To turn ALL digits ON and reset them to zero, press  .

4. Set all digits until the desired Full Scale Point is displayed.

To accept the displayed setting and proceed to the next parameter (Calibration Point), press .

To exit the Program Constants menu and store your settings, repeatedly press  until SETUP is displayed, then press  again to return to the weighing mode.



Calibration Point

The calibration point is the weight value that will be used to calibrate the Bench Scale. It can be any value from 10% to 100% of the Full Scale Point.



If Linearization is enabled (internal Switch 1 is ON), the calibration point must be at least 75% Full Scale Point.


To enter the calibration point:


1. Access the "CALPt" parameter if it is not already displayed.
2. The display will show the current calibration point with the first digit(s) flashing. For first time setup, the calibration point will be the same as the full scale point entered.
3. Press  to change the value of the first digit.
4. When the desired value is displayed, press  to move to the next digit.


60000 lb
└── Flashing

5. Set the value of all digits in the same manner until the desired Calibration Point is displayed.



You may set the Calibration Point equal to the Full Scale Point (if it is not already) with one button by pressing  .

To exit the Program Constants menu and store your settings, press  and SETUP will be displayed.

Press  again to return to the weighing mode.

Chapter 4

RS232 Interface

The Bench Scale is equipped with a bi-directional RS232 compatible interface for communication with printers and computers.

When the Bench Scale is connected directly to a printer, displayed data can be output at any time by simply pressing the PRINT button, or by using the Auto Print feature.

Connecting the Bench Scale to a computer enables operation from the computer, as well as receiving data such as displayed weight, weighing mode, stability status, etc.

This chapter describes the hardware and software provided with the Bench Scale.

Hardware

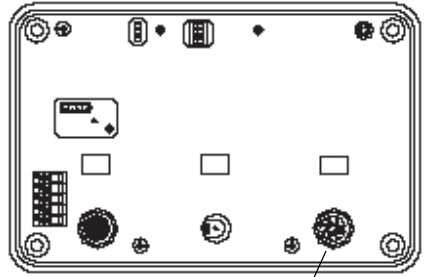
Connection to the interface is made using the 8-pin DIN receptacle on the rear of the Weight Indicator using an RS232 cable. The pinout and pin connections are shown on the security plate label.



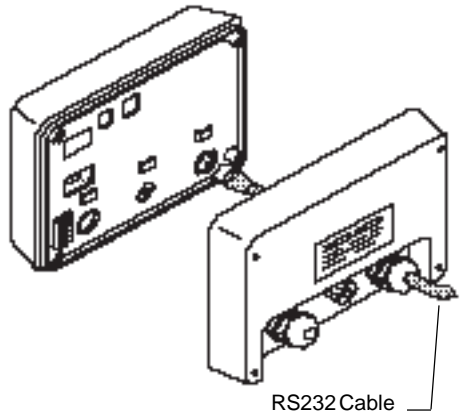
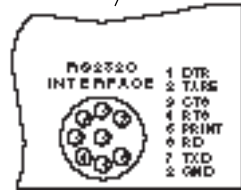
The Weight Indicator will not output data unless pin 3 is held in an ON state (+3 to +15 V dc). Interfaces not utilizing the CTS handshake may tie pin 3 to pin 1 to defeat it.



A suitable connector is available from Ohaus as an accessory. See *Accessories* in Chapter 7.



RS232
Connector



RS232 Cable

Output Formats

Data output can be initiated in one of three ways: 1) by pressing PRINT; 2) using the Auto Print feature; 3) sending a "P" command from the computer. The output format is illustrated in the RS232 command table (under "P") which follows.

Communication Parameter Settings

Baud Rate:	*300, 1200 or 9600 selectable in Print menu
Start Bit:	1
Data Bits:	7
Parity:	None
Stop Bits:	2

* Factory Default Setting.

RS232 Commands

All communication is accomplished using standard ASCII format. Only the characters shown in the following table are acknowledged by the Weight Indicator. Any other commands, control characters or spaces are ignored.

Commands sent to the Weight Indicator must be terminated with a carriage return (CR) or carriage return-line feed (CRLF). For example, a tare command should appear as shown in the adjacent diagram. Data output by the I20W is always terminated with a carriage return-line feed (CRLF).

TARE COMMAND

Field:
Length:

T	CR	LF
1	1	1

RS232 COMMAND TABLE

Command Character	Description																		
?	Print current mode and stability status <table border="1" style="margin-left: 20px;"> <tr> <td>Field:</td> <td>Mode</td> <td>Net</td> <td>Stab</td> <td>Adr</td> <td>CR</td> <td>LF</td> </tr> <tr> <td>Length:</td> <td>3 or 5</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> <td>1</td> </tr> </table> <div style="margin-left: 100px;"> <p>00 to 99 Blank if stable " ? " if unstable N = Net G = Gross lb, kg, or lb:oz</p> </div>	Field:	Mode	Net	Stab	Adr	CR	LF	Length:	3 or 5	1	1	2	1	1				
Field:	Mode	Net	Stab	Adr	CR	LF													
Length:	3 or 5	1	1	2	1	1													
T	Same effect as pressing TARE button																		
M	Same effect as pressing UNITS button																		
P	Print display data <table border="1" style="margin-left: 20px;"> <tr> <td>Field:</td> <td>Pol</td> <td>Weight</td> <td>Mode</td> <td>Net</td> <td>Stab</td> <td>Adr</td> <td>CR</td> <td>LF</td> </tr> <tr> <td>Length:</td> <td>1</td> <td>7</td> <td>3 or 5</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> <td>1</td> </tr> </table> <div style="margin-left: 20px;"> <p>blank if positive "-" if negative</p> <p>Displayed weight sent right justified w/lead zero blanking.</p> <p>Same as "?" command</p> </div>	Field:	Pol	Weight	Mode	Net	Stab	Adr	CR	LF	Length:	1	7	3 or 5	1	1	2	1	1
Field:	Pol	Weight	Mode	Net	Stab	Adr	CR	LF											
Length:	1	7	3 or 5	1	1	2	1	1											
Z	Same effect as pressing ZERO button																		
N	Same effect as pressing GROSS/NET button																		
#G	Go To Mode "#" where "#" = 0, 1 or 2 as follows: 0 = lb, 1 = kg, 2 = lb:oz																		
W or	Send Gross Weight: The Bench Scale will automatically switch to GROSS weight																		
SGW	reading, then output display data.																		
#A	Set Averaging Level to "#": <table style="margin-left: 20px;"> <tr> <td># Value</td> <td></td> </tr> <tr> <td>0</td> <td>200 milliseconds w/no filtering</td> </tr> <tr> <td>1</td> <td>200 milliseconds with filtering</td> </tr> <tr> <td>2</td> <td>400 milliseconds with filtering</td> </tr> <tr> <td>3</td> <td>800 milliseconds with filtering</td> </tr> </table>	# Value		0	200 milliseconds w/no filtering	1	200 milliseconds with filtering	2	400 milliseconds with filtering	3	800 milliseconds with filtering								
# Value																			
0	200 milliseconds w/no filtering																		
1	200 milliseconds with filtering																		
2	400 milliseconds with filtering																		
3	800 milliseconds with filtering																		
##D	Set Address to "##" where "##" is from 01 to 99. 00 disables the feature.																		

RS232 COMMAND TABLE (Continued)

Command Character	Description										
#0	Set Auto Shut-off Timer to “#”: <table style="margin-left: 100px;"> <thead> <tr> <th># Value</th> <th></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Always ON</td> </tr> <tr> <td>1</td> <td>2 minutes</td> </tr> <tr> <td>2</td> <td>5 minutes</td> </tr> <tr> <td>3</td> <td>9 minutes</td> </tr> </tbody> </table>	# Value		0	Always ON	1	2 minutes	2	5 minutes	3	9 minutes
# Value											
0	Always ON										
1	2 minutes										
2	5 minutes										
3	9 minutes										
C	Begin Calibration: Automatically accesses calibration menu and begins. Display messages are output via the interface.										
S	Saves all menu selections made via the interface. Scale outputs the message “Data Saved” when completed. If this command is not used after making menu changes, changes will not be stored when the Bench Scale is turned off.										
V	Output software version number, for example: 98100-XX VX.X.										

Chapter 5 Sealing for Type Approved and Legal for Trade Applications

When the Bench Scale is installed in a Type Approved or Legal For Trade application, it must be sealed as explained in this chapter to prevent unauthorized changes to setup and calibration data.

Setup and Calibration Restrictions

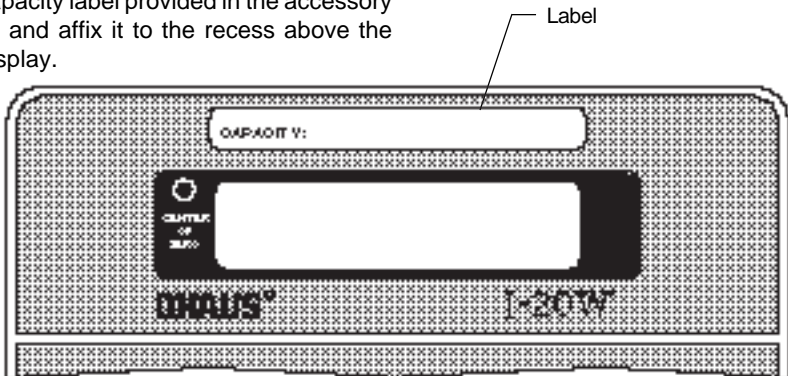
When LFT is selected in the program constants menu, the following parameter settings are automatically restricted by the software:

- Auto Zero Tracking may be set at 0.6, 1 or 3.
- Only pounds and/or kilograms may be used.
- RS232 Auto Print may be set to "OFF" or "StAb" (output on stability) only.
- Display resolution may be set to specific values depending on model, see Chapter 7 for details.
- Calibration is restricted to 2 Point Calibration.

Verify that the Bench Scale has been configured according to these restrictions by reviewing program constants on page 3-18.

Labeling

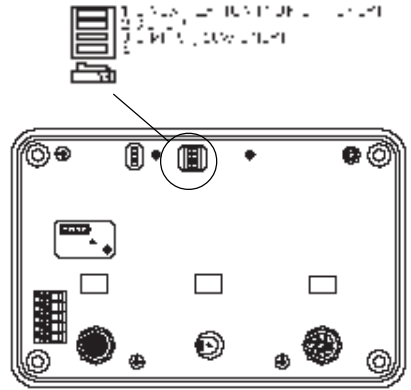
Type the capacity and resolution on the capacity label provided in the accessory kit and affix it to the recess above the display.



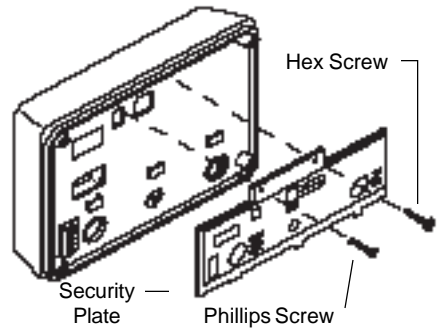
Sealing

After the Bench Scale has been evaluated and approved by a Weights and Measures official, the Bench Scale may be sealed as follows:

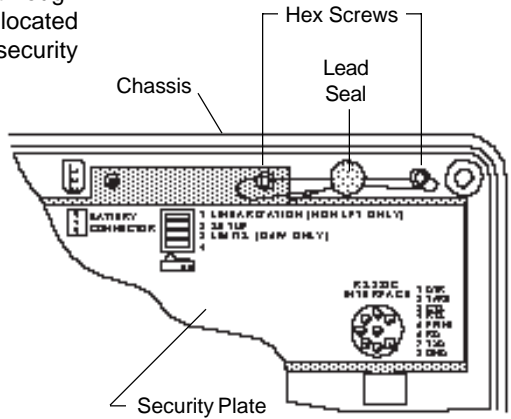
1. With the rear cover and security plate removed, set Switch 2 to the OFF position to disable access to menu settings.



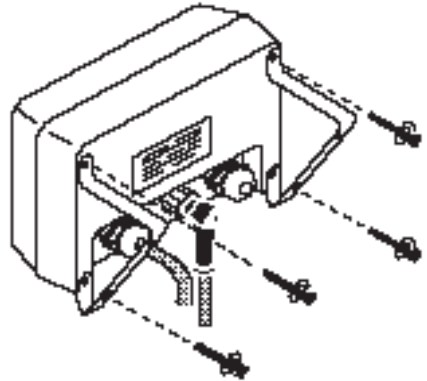
2. Install the security plate.



3. Pass the lead and wire seal through the holes in the hex screws located at the upper right of the security plate and chassis.



4. Replace the rear cover, "O" Ring and mounting brackets.



NOTE:

When attaching the brackets, the "O" Rings should be placed between the brackets and rear cover to insure the proper water tight seal.

Chapter 6

Troubleshooting

The information in this chapter is intended to help identify and correct errors that may be made in installing or operating the Bench Scale. It includes:

- a troubleshooting chart
- a description of messages that may appear on the display
- information on proper care and maintenance

Troubleshooting**TROUBLESHOOTING CHART**

SYMPTOM	PROBABLE CAUSE(S)	REMEDY
Unit will not turn on.	Power cord not plugged in or properly connected. Batteries dead or not properly connected.	Check power cord connections. Make sure adapter connector is plugged all the way into the indicator. Check battery connector. Replace alkaline batteries or recharge NiCad batteries.
Cannot zero indicator, or will not rezero when turned on.	Load on Scale Base exceeds allowable zero % entered in "ZERO" parameter of Program Constants menu (see Chapter 3).	Remove load on Scale Base to less than entered zero %. Change allowable zero % in "ZERO" parameter of Program Constants menu (see Chapter 3).
Center of Zero display indicator erratic or does not appear with no load on Scale Base.	Scale Base motion or disturbances exceed center of zero criteria.	Remove disturbances or reduce motion. Increase averaging level in AL menu.
Cannot display weight in desired weighing unit.	Desired unit not set to ON in Unit Selection menu.	Enable desired unit (see Chapter 3). Only kg and lb are available when LFT is set to ON.
Unable to tare (front panel or RS232 command).	Display is negative.	Remove load, zero indicator, replace load and tare again.

Troubleshooting (Cont.)

TROUBLESHOOTING CHART (Cont.)

SYMPTOM	PROBABLE CAUSE(S)	REMEDY
RS232 not working.	RS232 communication parameters set up incorrectly. Cable connections.	Verify communication parameters. Check cable connections.
Unable to calibrate unit.	Load cell disconnected. Incorrect zero adjustment. Improper gain setting.	Check connections. Check dead load in calibration menu. Check jumper.
Random segments displayed or display "locks up".	Microprocessor lock-up.	Depress and hold down OFF key until unit turns off (about 10 seconds), then turn ON again. If unsuccessful or condition persists, unit must be serviced.

Error Messages

DISPLAYED MESSAGE	DESCRIPTION
bat	Annunciator in the upper left corner of the display indicates that batteries are becoming weak. Weight values remain valid.
LobAt	Batteries are too weak to display weight values.
UnCAL	Invalid checksum of non volatile memory; unit must be set up for program constants and calibrated. If error remains, it indicates a hardware problem. Checksum is verified each time the Bench Scale is turned on.
ErrLo	Underload condition. Dead load weight is less than dead load during calibration.
ErrHi	Weight is beyond 105% of full scale capacity.
Err0	Invalid memory checksum; indicates hardware error. Checksum is verified each time the Atlas Bench Scale is turned on.
Err2	Indicates overrange of A/D converter. Usually caused by over weight condition beyond "ErrHi".
Err3	RS232 Communication error - Invalid command sent.
Err5	Internal value is too large to display. Check Program Constants menu or Custom Units Conversion Factor.
Err7	No weight units are enabled. See Chapter 3.
Err9	Occurs when indicator is turned on. Indicator is reading greater than 4% of full scale weight when turned on. The indicator must be turned off, the weight removed from the platform and turned on again to clear the error message.

If error 9 appears at power up when there is no weight on the platform, the indicator must be recalibrated.

Error 9 also appears when trying to zero an unstable platform. If the platform is unstable, any attempt to zero will be aborted.

tohi	Calibration/Linearization Error. Weight may have been added during calibration procedure when no load should be on Scale Base.
toLo	Calibration/Linearization Error. Incorrect weight placed on Scale Base during calibration procedure.

Care and Maintenance

To keep your Bench Scale operating properly, observe the following:

- Remove the power pack before cleaning.
- DO NOT USE CHEMICALS OF ANY KIND WHEN CLEANING. Use only a damp cloth and mild detergent for cleaning. Abrasives may damage the display window.
- Be careful not to scratch the display window.

Service Information



If the troubleshooting section does not resolve or describe your problem, you will need to contact an authorized Ohaus Service Agent. For Service assistance in the United States, call Ohaus Corporation toll-free at (800) 526-0659. An Ohaus Product Service Specialist will be available to help you.

Chapter 7 Specifications, Replacement Parts and Accessories

Specifications

MODEL	B10AS20	B25AS20	B50AS20	B100AS20	B150AS20	B250AS20
Capacity (lb)	25	50	100	200	300	500
	(kg)	10	25	50	100	150
Readability (lb)	0.001	0.002	0.005	0.01	0.01	0.02
	(Non type approved) (kg)	0.0005	0.001	0.002	0.005	0.005
Readability † (lb)	0.005	0.01	0.02	0.05	0.1	0.1
	(Type approved) (kg)	0.002	0.005	0.01	0.02	0.05
Weighing modes ††	lb, kg, lb:oz, over/under					
Repeatability (Std. dev.) †	± 0.01%					
Linearity †	± 0.02%					
Safe overload capacity †	150%					
Auto-zero tracking capture range ††	Off, 0.6, 1, 2 or 3 divisions					
Operating humidity range	10% to 95% RH					
Operating temperature range	32° to 104°F/0° to 40°C (Non type approved)					
Zeroing range ††	2%, 4% or 100% of capacity					
Stabilization time	3 seconds					
Span calibration	Push-button (selectable 10% to 100% of capacity for non type approved)					
Power requirements	AC adapter: 100, 120, 220, 240 V ac, 50/60 Hz					
Battery requirements	6 alkaline or NiCad rechargeable "C" batteries					
Typical battery charge duration (w/out RS232)	alkaline - 100 hours/ NiCad - 40 hours					
Scale base size (WxDxH) (In/cm)	12 x 12 x 3.4/	18 x 18 x 3.6/	24 x 24 x 5.8/			
	30 x 30 x 8.6	45 x 45 x 9.1	60 x 60 x 14.8			
Scale base construction Platform	Stainless steel					
Frame	Stainless steel					
Indicator size (WxDxH) (In/cm)	7.5 x 2.8 x 5/19 x 7.1 x 12.7					
Display (in/cm)	Backlit LCD (0.6/1.5 high)					
Net weight (lb/kg)	14/7		39/18		75/35	
Shipping weight (lb/kg)	18/9		47/22		87/40	

Specifications (Cont.)

MODEL	B10AS20	B25AS20	B50AS20	B100AS20	B150AS20	B250AS20												
Electrical ratings (for power adapters only)	100 V/120 V UL1910, CSA C22.2 no.66 and 107; 220 V (Europe)/ 240 V (UK) EN60950																	
Indicator I20W type approval	 NIST HB44 Class III/IIIL n_{\max} 10000 32° to 104°F/ 0° to 40°C NTEP No. 88-081A1																	
Scale base type approval	 <table border="0"> <tr> <td>B10AS</td> <td>n_{\max} 5000</td> </tr> <tr> <td>B25AS</td> <td>n_{\max} 5000</td> </tr> <tr> <td>B50AS</td> <td>n_{\max} 5000</td> </tr> <tr> <td>B100AS</td> <td>n_{\max} 5000</td> </tr> <tr> <td>B150AS</td> <td>n_{\max} 3000</td> </tr> <tr> <td>B250AS</td> <td>n_{\max} 5000</td> </tr> </table>						B10AS	n_{\max} 5000	B25AS	n_{\max} 5000	B50AS	n_{\max} 5000	B100AS	n_{\max} 5000	B150AS	n_{\max} 3000	B250AS	n_{\max} 5000
B10AS	n_{\max} 5000																	
B25AS	n_{\max} 5000																	
B50AS	n_{\max} 5000																	
B100AS	n_{\max} 5000																	
B150AS	n_{\max} 3000																	
B250AS	n_{\max} 5000																	

NOTE: Type approvals are for the individual Weight Indicator and Scale Base components and apply only if the Bench Scale is set up to the maximum number of displayed divisions (n_{\max}) specified above.

* In type approved applications, readability is limited to capacity/ n_{\max} .

** User selectable.

† Specifications are given as a percent of the rated load.

Replacement Parts

	<u>OHAUS PART NO.</u>
AC Adapters:	
100 V ac, 50 Hz North American Plug	90524-59
120 V ac, 60 Hz North American Plug	90524-58
220 V ac, 50 Hz European Plug	90524-60
240 V ac, 50 Hz U.K. Plug	90524-61
Stainless Steel Platforms for Models:	
B10AS20, B25AS20 (12" x 12")	78168-01
B50AS20, B100AS20 (18" x 18")	78168-02
B150AS20, B250AS20 (24" x 24")	76168-03
Adjustable Feet for Models:	
B10AS20, B25AS20, B50AS20, B100AS20	76635-02
B150AS20, B250AS20	76635-03
Load Cell Kits for Models:	
B10AS	78200-12
B25AS	78200-13
B50AS	78200-14
B100AS	78200-15
B150AS	78200-16
B250AS	78200-17

Accessories

	<u>OHAUS PART NO.</u>
Wall Mount Accessory Kit	76972-00
Tower Accessory Kit	
30 Inch Stainless Steel with adjustable height	78177-01
Base Mount Accessory Kit	78187-02
NiCad Rechargeable Battery Accessory Kit	77015-00
RS232 8 pin DIN Connector	90675-01

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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