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**INDUSTRIAL ELECTRONIC  
WEIGHT INDICATOR  
Model I10**

**Instruction Manual**



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 electro-magnetic 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 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, ggfs. ist ein Wiedereinschalten erforderlich.

## **CLASSIFICATIONS**

- National Institute of Standards and Technology Handbook 44 Class III and III L, certificate of conformance number 88-081A1
- Consumer and Corporate Affairs Canada Weights and Measures Act and Regulations general class. Notice of Approval number S.WA-4469

## **PREFACE**

I 10 Indicators are software controlled devices with a host of user-programmable features. Calibration and setting up features are easily accomplished through the software using the front panel buttons and display.

## **WHAT TO READ**

This manual explains how to use your I 10 properly and should be read before operation.

- If your I 10 is part of an Ohaus Bench Scale setup, preprogrammed and calibrated at the factory, or if it has already been installed and programmed for you, Chapter 6 contains instructions on weighing, parts counting and using the interface for printing.
- If you are an installer, Chapter 1 contains instructions for unpacking and installing the I 10.
- To program and calibrate the I 10 for a particular application, refer to Chapters 2, 3, 4 and 5.

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# Chapter 1: Installation

If the I 10 has already been installed, you may skip most of this chapter. You may however need to refer back to it if you change load receivers, power supply or need to access the internal switches.

This chapter contains the following information:

- Unpacking
- Load Receiver Connections
- Power Connections
- RS232 Connection
- Sealing and Mounting
- Turning The I 10 ON

## Unpacking

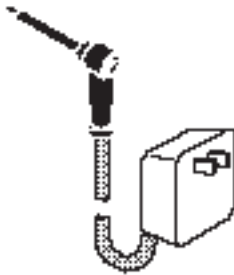
Unpack the I 10 at the installation site and verify that the following items were included in the carton:

- an AC Adapter
- two mounting brackets
- an accessory kit including:
  - 2 lead and wire seals
  - 1 screwdriver
  - 5 capacity labels
  - a warranty card
  - this instruction manual



I 10 Indicator

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



AC Adapter



Mounting  
Brackets



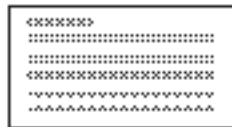
Capacity Labels



Lead and Wire Seal



Screwdriver



Warranty Card

## Assembly

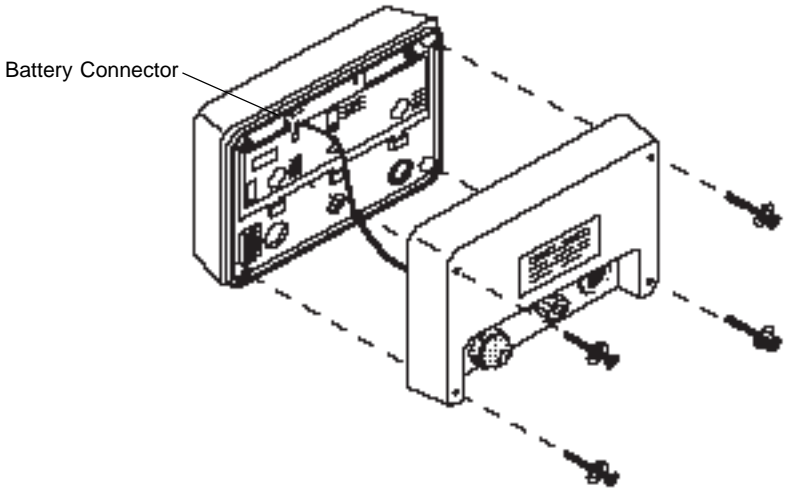
Assembly consists of making the necessary electrical connections, applying power, sealing and mounting the unit.



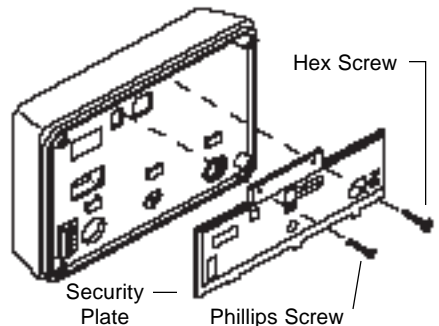
The rear cover of the indicator will need to be removed for setting up and calibrating the indicator. It will remain off until calibration is completed.

### Rear Cover Removal

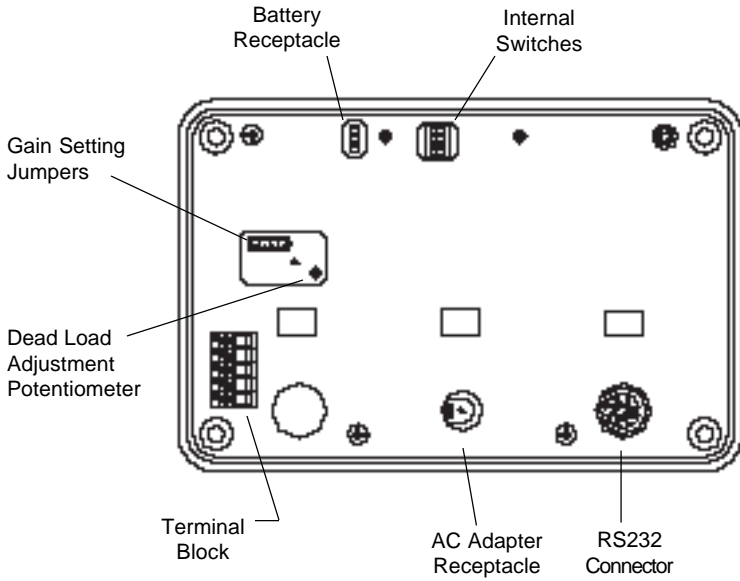
Using a phillips screwdriver, remove the four screws and washers which secure the rear cover and pull it away from the front of the I 10. Keep screws and washers on hand for re-assembly.



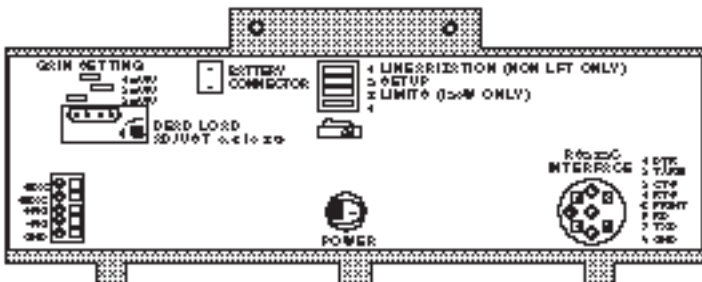
With the rear cover off, disconnect the battery connector, remove the security plate using a 7/64" hex wrench and a phillips screwdriver.



With the security plate removed, the back of the I 10 is exposed providing access to internal switches, the dead load adjustment potentiometer and the gain settings jumpers.

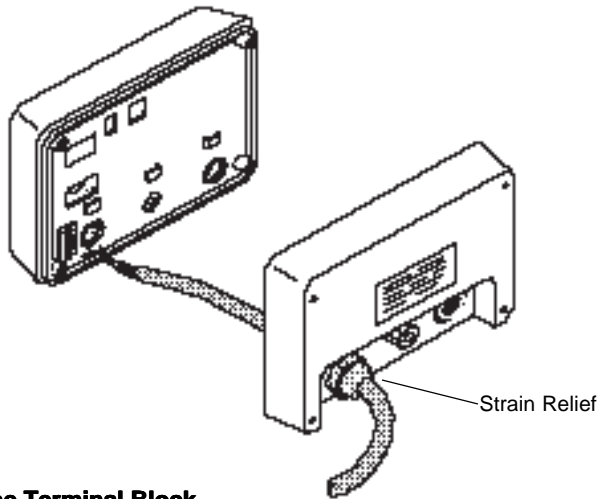


The label on the security plate contains diagrams for electrical connections, switches, jumpers, etc., and will be used as a reference throughout the installation.



## Load Receiver Connections

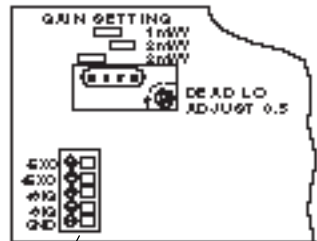
The load receiver may be connected to the I 10 by hardwiring the connecting cable to the Terminal Block.



### Hardwiring To The Terminal Block

1. Pass the cable from the load receiver through the opening in the left strain relief.
2. Connect the wires to the Terminal Block according to the markings on the Security Plate Label. If an Ohaus platform is being used, the leads are color coded as follows:

Black: -Excitation  
Green: +Excitation  
Red: +Signal  
White: -Signal  
Shield: Ground  
Yellow: unused\*  
Blue: unused\*



\* Terminate yellow and blue wires so conductors do not short out against shield or each other.

## Power Options

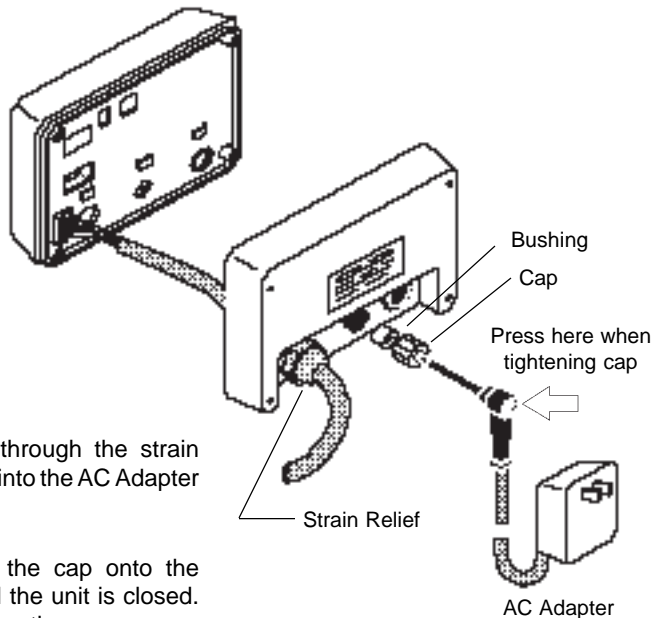
The I 10 may be operated using the AC Adapter supplied, or 6 Alkaline "C" batteries (not supplied).

### AC Adapter

**During setup**, plug the AC Adapter directly into the receptacle.

**Following setup**, 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. If a yellow nylon ring has been included inside the cap, discard it.
2. Slide them completely over the plug of the adapter.

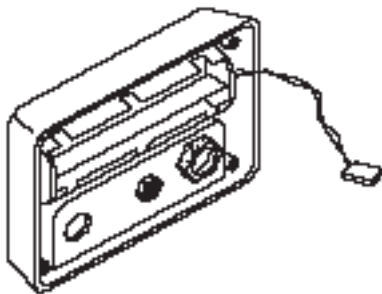


3. Pass the plug through the strain relief and plug it into the AC Adapter Receptacle.
4. Do not tighten the cap onto the strain relief until the unit is closed. When tightening the cap, press down on the plug to ensure a good connection.
5. Plug the Adapter into a convenient AC outlet.

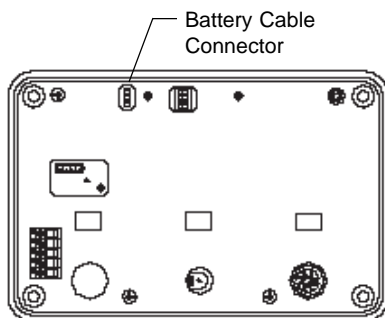
## Battery Operation

The battery holder is located inside the rear cover.

Place 6 Alkaline “C” batteries into the battery holder orienting the plus (+) and minus (-) ends as indicated on the holder.



Connect the battery cable connector to the 3 pin battery receptacle. The connector may be plugged in either way.

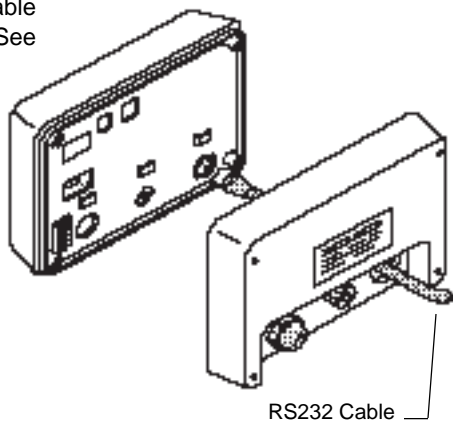


## RS232 Cable

If the RS232 interface will be used, external equipment may be connected to the I 10 using an 8 pin DIN connector configured as shown on the Security Plate.

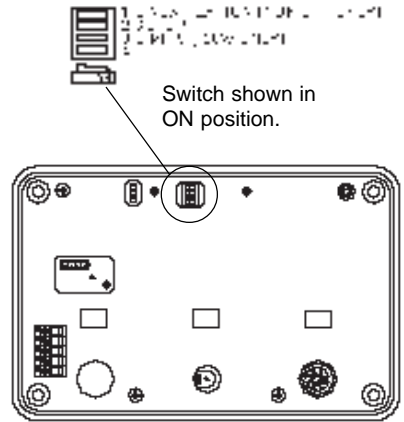


A suitable connector is available from Ohaus as an accessory. See [Accessories in Chapter 10](#).



## Internal Switch Functions

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



SWITCH NUMBER	POSITION	FUNCTION DESCRIPTION
1	ON	Not Legal For Trade Applications: 3 Point Linearization 2 Point Calibration
	OFF	
2	ON	Enables access to SETUP and CALIBRATION from the front panel or RS232 interface.
	OFF	Disables access to SETUP and CALIBRATION.
3	ON	<b>Memory Mode Enabled:</b> Current ZERO and TARE data are retained in memory when I 10 is turned off. When turned back on, ZERO and TARE data are restored and current GROSS weight is displayed. This feature prevents loss of weight data if the I 10 is accidentally shut off, as in hopper scale application. This feature does NOT prevent loss of weight data during a power loss unless batteries are also installed.
	OFF	Memory Mode Disabled: At power off, all current weight data is lost.
4		No function.

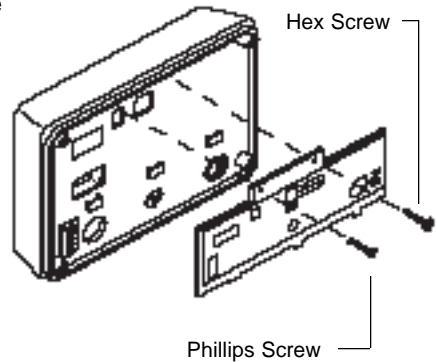
## Sealing and Mounting



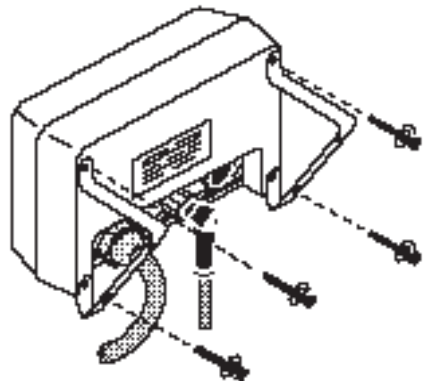
Before sealing and mounting can take place, you must program and calibrate the I 10 as explained in Chapters 2, 3, 4 and 5.

After the unit has been programmed and calibrated, it may be sealed as follows (for Legal For Trade applications, see [Chapter 8](#)):

1. Replace the Security Plate and fasten it to the unit as shown in the diagram.



2. Position the rear cover and mounting brackets on the unit as shown in the diagram. Fasten any cable connectors, strain relief caps, etc. that may be used for cable connections.
3. Install the four phillips screws and washers to secure the cover and brackets.













## Turning The I 10 ON

After all connections have been made, turn the I 10 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.



## Display Indicator Functions

	Lights when scale is at center of zero		Lights to indicate current weighing unit is custom unit
	Indicates low battery condition		Indicates I 10 is in parts counting mode
	Indicates negative value		Indicates displayed value is a percentage
	Lights to indicate current weighing unit is pounds		Lights next to "GROSS" when gross weight is displayed
	Lights to indicate current weighing unit is kilograms		Lights next to "NET" when net weight is displayed

## Front Panel Button Functions

	OPERATING MODE		SETUP MODE	
			Program Constants Menu	Program Options Menu
<b>ON ZERO</b>	<ul style="list-style-type: none"> <li>• Turns I 10 ON</li> <li>• Rezeroes display</li> </ul>	<ul style="list-style-type: none"> <li>• Turns all digits ON or resets to initial value</li> </ul>	<ul style="list-style-type: none"> <li>• Accesses Averaging Level</li> <li>• Turns all digits ON or resets to initial value</li> </ul>	
<b>TARE</b>	<ul style="list-style-type: none"> <li>• Tares weight on load receiver</li> <li>• Accesses Setup Mode (extended press)</li> </ul>	<ul style="list-style-type: none"> <li>• Accesses Calibration</li> <li>• Enters displayed value, continues to next entry</li> <li>• Exits setup mode saving all settings. Returns to weighing mode</li> </ul>	<ul style="list-style-type: none"> <li>• Enters displayed value, continues to next entry</li> <li>• Exits setup mode saving all settings. Returns to weighing mode</li> </ul>	
<b>GROSS NET</b>	<ul style="list-style-type: none"> <li>• Switches display between gross and net weight</li> </ul>	<ul style="list-style-type: none"> <li>• Accesses Program Constants menu</li> <li>• Shifts cursor to next character on display when entering numeric values</li> </ul>	<ul style="list-style-type: none"> <li>• Shifts cursor to next character on display when entering numeric values</li> </ul>	
<b>UNITS</b>	<ul style="list-style-type: none"> <li>• Changes displayed weighing unit/mode</li> </ul>	<ul style="list-style-type: none"> <li>• Increments numeric values by 1</li> <li>• Scrolls through options for current menu item</li> </ul>	<ul style="list-style-type: none"> <li>• Accesses Unit Selection</li> <li>• Scrolls through options for current menu item</li> </ul>	
<b>PRINT OFF</b>	<ul style="list-style-type: none"> <li>• Outputs displayed data via RS232 interface</li> <li>• Turns I 10 OFF (extended press)</li> </ul>	<ul style="list-style-type: none"> <li>• Re-displays current entry name</li> </ul>	<ul style="list-style-type: none"> <li>• Accesses Timer/RS232 settings</li> <li>• Re-displays current entry name</li> </ul>	

## **Chapter 2: Setup Mode**

The Setup mode enables you to program and calibrate the I 10 using the front panel buttons and the display.

When you first install the I 10, you must use the Setup mode to enter information about the load receiver being used and to perform calibration. You may also use it to program options that will customize the I 10 for your specific weighing requirements.

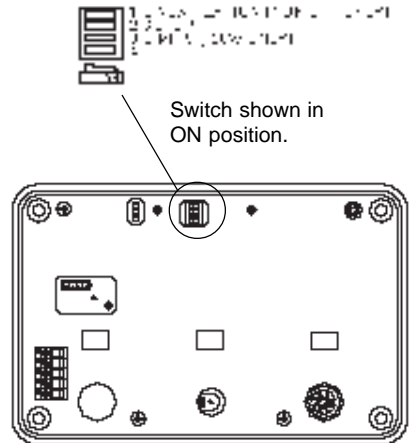
This Chapter explains how to access and use the Setup mode.

## Setup Mode and the I 10 Menu Structure

Programmable features of the I 10 are contained in “menus” which are accessed in the Setup mode. The chart on page 2-3 shows how these menus are structured.

### To access the Setup mode:

Switch 2 on the rear panel must be in the ON position.



press and hold **T.A.P.E** until “SEtUP” is displayed, then release it.

SEtUP

### To access a menu:

Refer to the [chart on page 2-3](#) for the proper front panel button to press for the menu you wish to access. Chapters 3, 4 and 5 contain information on using each of the menus shown in the chart.

### Initial Setup

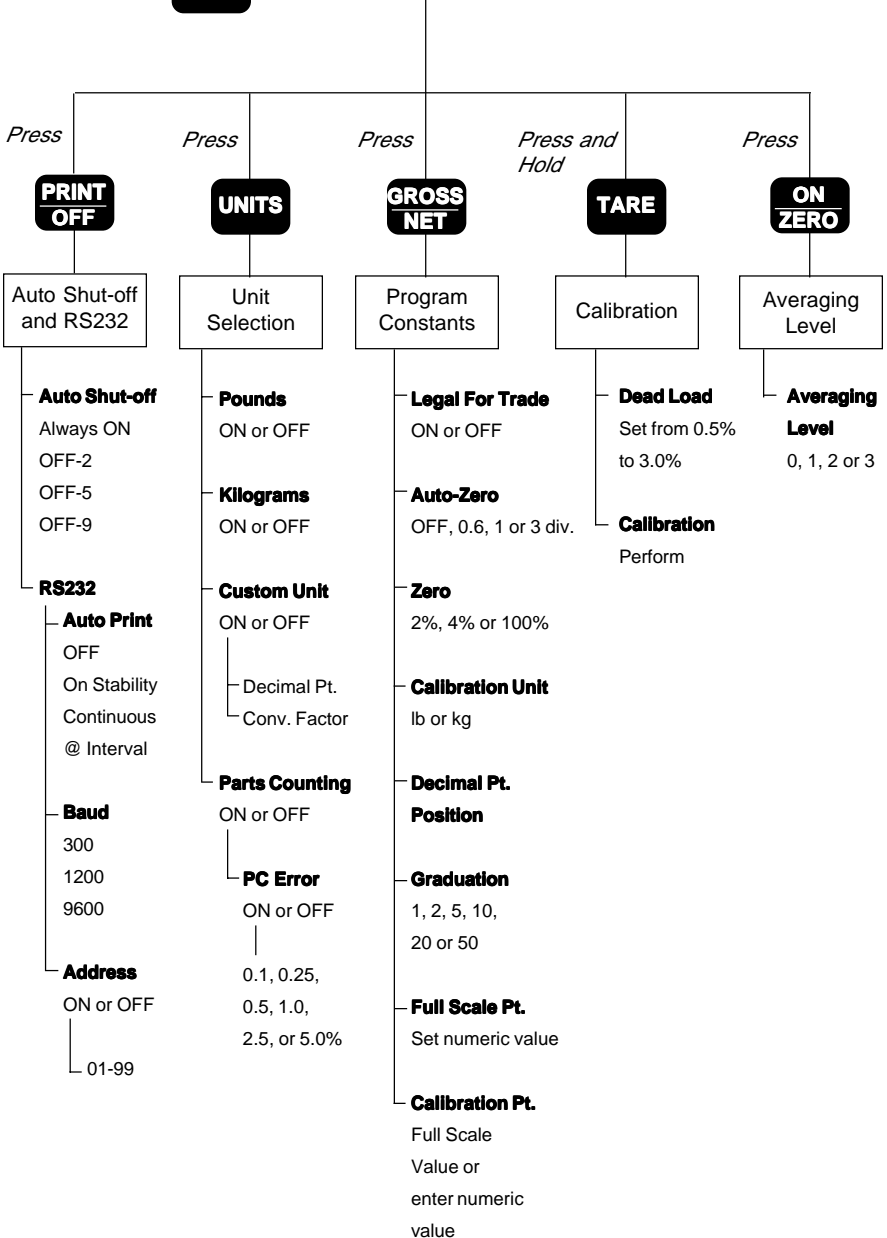
For initial setup of the I 10, you must go through the Program Constants menu and Calibration. All other menus are optional.

### Locking Out Setup Mode

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

# I 10 Menu Structure Chart

Press and Hold **TARE** to access **SETUP** then release.



## Chapter 3: Setting Program Constants

Program Constants configure the I 10 for the load receiver being used and for Legal for Trade requirements if needed.

The Program Constants menu is accessed from the Setup mode. When the I 10 is setup for the first time, it is recommended to go through all parameters in the menu. Once it has been setup, you can return to the menu to change individual parameter settings.



Since the parameters in this menu define the load receiver, the I 10 must be recalibrated when any of these parameters are changed.

## Using The Program Constants Menu

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 I 10 for Legal for Trade operation
AZt	sets Auto-Zero Tracking to Off, 0.6, 1 or 3 divisions
ZErD %	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 **TARE** until "SETUP" is displayed, then release it.


SETUP

Press **PROGRAM  
NET** 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.

### Skipping parameters to access a specific one (NOT for first time setup):

Repeatedly press  until the desired parameter name flashes followed by its current setting.

### Re-displaying a parameter name when its setting is shown:


The I 10 will flash the parameter name and then the current setting.

To re-display the name, press .



The parameter name will flash and then its current setting will be displayed again.

 parameter name  
 current setting  
 press PRINT to re-display name

### Reset Values

Each parameter may be set to the reset values shown in the adjacent table by pressing  when the parameter is displayed.

Exiting the menu/storing settings:

Repeatedly press  until "SETUP" is displayed, then press  again to return to the weighing mode.



"SETUP" will automatically be displayed after you enter the last menu parameter, "Calibration Point".

The following sections describe each menu parameter in detail and explain how to set them.

#### RESET VALUES

Legal for Trade	noLFT
Auto-Zero Tracking	0.6
Zero %	100%
Calibration Unit	lb
Decimal Point Position	-----.
Graduation	1
Full Scale Point	0 0 0 0
Calibration Point	Full Scale Value

## Legal For Trade

SELLT

This parameter is used to configure the I 10 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 1:10,000.

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

noLft

or

Lft

To change the setting, press **UNIT** .

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

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

## Auto-Zero Tracking

# AZt

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 I 10 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 load receiver.



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 **UNIT** until the desired setting is displayed.

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

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

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.

AZt (OFF)  
0.6  
1.0  
3.0

## Zero

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:



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 "ZEro" parameter if it is not already displayed.
2. Press **UNIT%** until the desired setting is displayed.

100 %  
2 %  
4 %

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

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

## Calibration Unit

The I 10 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 **UNIT** until the desired setting is displayed.

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

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

**CALun****CALun<sup>lb</sup>**

or

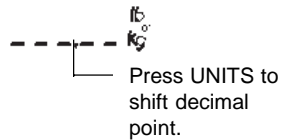
**CALun<sup>kg</sup>**

## Decimal Point Position

**dP**

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 **UNITS** to move the decimal point to the desired position.



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

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

## Graduations

**grAd**

This parameter specifies the increments in which the last digit(s) of the display will count. 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 I 10 to count by 0000.2.

Setting graduations to 2 with a decimal point position of 00000 (no decimal places) will cause the I 10 to count by 2.

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

To set graduations:

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

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

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

## Full Scale Point

# FS


The maximum capacity of the load receiver 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 to 10,000 divisions. If you attempt to enter a full scale point that will yield a resolution greater than 1:10,000, the display will flash "LFT", then "Err" (error), and return to the Graduations parameter.

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

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 **TARE** .

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

## Calibration Point

The calibration point is the weight value that will be used to calibrate the I 10. 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 **UNIT** to change the value of the first digit.
4. When the desired value is displayed, press **NET** 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: Setting Program Options

Program Options are I 10 features that you can customize for your specific requirements. These include the weighing units you wish to use, averaging level for your environment, RS232 configuration and the auto shut-off timer.

They are accessed from the Setup mode and arranged in three menus:

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

Program Options may be changed at any time without having to recalibrate the I 10.

## Averaging Level

AL.

Averaging level compensates for vibration or excessive air currents on the load receiver. 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.

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

To view or change the averaging level:

1. Press and hold **TARE** to access the Setup mode.

Release **TARE** when "SETUP" is displayed.

2. Press **ON** to access Averaging Level. The current Averaging Level setting will be displayed.
3. Repeatedly press **UNIT** until the desired setting is displayed.
4. Press **TARE** to accept the displayed setting and return to the Setup mode.

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

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

## Unit Selection

# SEL

The I 10 permits you to display weight in pounds, kilograms, a programmable custom unit, and to count parts. To enable or disable various weighing units and parts counting, use the following procedure.

lb	Pounds
kg	Kilograms
c*	Custom Units
PC*	Parts Counting

\* Not available for Legal For Trade installations.

### Pounds and Kilograms

1. Press and hold **TAPE** to access the Setup mode.

Release **TAPE** when "SETUP" is displayed.

2. Press **UNIT<sup>2</sup>** to access Unit Selection.

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


On <sup>lb</sup>  
or  
OFF <sup>lb</sup>

3. To change the status, press **UNIT<sup>2</sup>**.
4. To accept the displayed status, press **TAPE**.
5. When **TAPE** is released the next unit indicator (kilograms) will be displayed.

Set each indicator ON or OFF in the same manner.

If you turn Custom Units or Parts Counting ON, refer to the following sections before proceeding.

If they are turned off;

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

## Custom Units

If Custom Units is turned ON, you must program the custom unit before you can turn Parts Counting ON or OFF.



Appendix 1 provides additional information on custom units including the conversion factors for several commonly used weighing units.

To program a custom unit, it must first be defined in terms of the calibration unit:

$$1 \text{ Custom Unit} = \text{Conv. Factor} \times \text{Cal. Unit}$$

**Example 1** - You wish to display weight in grams and the I 10 is calibrated in kilograms:

$$\begin{aligned} 1 \text{ gram} &= .001 \text{ kilograms} \\ \text{Conversion Factor} &= 00.001 \end{aligned}$$

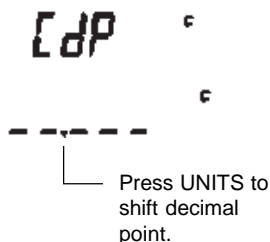
**Example 2** - You wish to display weight in tons and the I 10 is calibrated in pounds:

$$\begin{aligned} 1 \text{ ton} &= 2,000 \text{ pounds} \\ \text{Conversion Factor} &= 2000.0 \end{aligned}$$

Once you determine your custom unit conversion factor, use the following procedure to program it.

1. Turn Custom Units ON, then press **TARE** to accept the ON status.

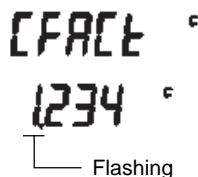
2. When **TARE** is released, "CdP" will flash then the current custom unit decimal position will be displayed.



3. To change the position of the decimal point, press **UNITS**.

4. When the decimal point is in the correct position, press **TARE** to accept it.

5. When **TARE** is released, "CFACT" will flash then the current conversion factor will be displayed with the first digit(s) flashing.



6. Enter your conversion factor using the front panel buttons as follows:

Press **ON ZERO** to reset display to all zeroes.

Press **UNITS** to increment flashing digit(s).

Press **ONCE NET** to shift to next digit.

When all digits have been set, press **TARE** to accept the displayed conversion factor and proceed to the Parts Counting indicator.

## Parts Counting Error Level

If Parts Counting is turned ON, you will be required to enter a parts counting error level. This is the level of accuracy you consider acceptable for parts counting results. The adjacent table lists error levels you can choose from.

EXAMPLE: With 5% selected, 100 parts on the load receiver may yield a displayed count from 95 to 105 parts.



If you will be using a container to hold parts for counting, you must set the parts counting error level to OFF.

Chapter 6 contains additional information on using the parts counting mode.

To select a parts counting error level or to disable the feature:

1. Turn Parts Counting ON, then press **TARE** to accept the ON status.
2. When **TARE** is released, "PCErr" will flash then the current status (ON or OFF) will be displayed.
3. To change the status, press **UNIT**.
4. When the desired status is displayed, press **TARE** to accept it.

PCErr PCZ

OFF	disables error level limits
Er0.1	±0.1% acceptable error
Er0.25	±0.25% acceptable error
Er0.5	±0.5% acceptable error
Er1.0	±1.0% acceptable error
Er2.5	±2.5% acceptable error
Er5.0	±5.0% acceptable error

PCErr PCZ

On PCZ

OFF PCZ

5. If OFF was selected, "SETUP" will be displayed when **TARE** is released indicating that Unit Selection is complete.

You can press **TARE** to return to the weighing mode, or proceed to another program option.

If ON was selected, the current parts counting error level will be displayed.

Er 5.0 PC 7

6. To change the error level, repeatedly press **UNIT** until the desired level is displayed.
7. Press **TARE** to accept the displayed error level.
8. When **TARE** is released, "SETUP" will be displayed indicating that Unit Selection is complete.


You can press **TARE** to return to the weighing mode, or proceed to another program option.


## Auto Shut-Off Timer and RS232 Parameters


The automatic shut-off timer can be enabled to turn the I 10 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.

Shut  
OFF

A_On	disables auto shut-off; I 10 will remain on
OFF-2	I 10 turns off after 2 minutes
OFF-5	I 10 turns off after 5 minutes
OFF-9	I 10 turns off after 9 minutes

4. To change the setting, repeatedly press **UNIT** until the desired setting is displayed.
5. Press **TAPE** to accept the displayed setting and proceed to the RS232 parameters.

### **RS232 PARAMETERS**

6. When **TAPE** is released, "rS232" will be displayed followed by its current setting (ON or OFF).
7. To change the setting, press **UNIT** until the desired setting is displayed.
8. Press **TAPE** to accept the displayed setting.

rS232

If RS232 is set to OFF, the I 10 will return to the Setup mode when **TAPE** is released.

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

**Auto Print**Auto  
Print

9. When **TAPE** is released,

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

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

**On Stability:** data is output whenever I 10 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

10. To change the setting, press

**UNIT0**.

11. Press **TAPE** 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.

OFF  
StAb  
Cont  
intEr**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.

Zero band restricts transmission if the change in load is less than 10 divisions.


ZEro  
bAnd

13. To change the setting press **UNIT0**.

14. To accept the displayed setting, press **TAPE**.


**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  



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**

bAud





18. When  is released,

“bAud” will flash followed by the current baud rate setting. 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.
22. To change the status press .
23. To accept the displayed status, press .
24. If the address is set to ON, the current address will be displayed when  is released.


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.

25. 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.

**WHEN TO USE THE ADDRESS**

When multiple indicators or 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.

**Adr 00**

Flashing

## Chapter 5: Calibration

The I 10 must be calibrated after Program Constants have been initially set, and when any of the Program Constants are changed (see [Chapter 3](#) - Program Constants). Calibration is accessed from the Setup mode.

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 (see [Chapter 3](#))
- If linearization will be performed, a weight equal to 1/2 of the Calibration Point will also be required
- the screwdriver which was provided with the I 10 (not required for factory calibrated bench scales; -C0 models).

### FACTORY CALIBRATED BENCH SCALES

If your I 10 is part of a factory calibrated bench scale setup (-C0 model number suffix), the weights listed below are recommended to perform calibration.

MODEL	CAL. WT. (lbs)
LB30-C0	30
LB60-C0	60
PL100-C0	100
PL150-C0	150
WB10-C0	10
WB25-C0	25
WB50-C0	50



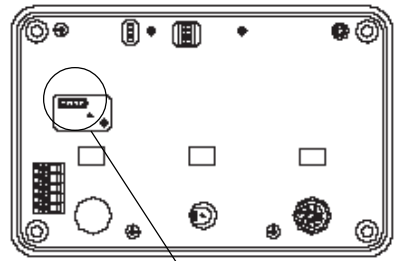
Only 2 point calibration is available for Legal For Trade installations.

The rear cover of the I 10 must be removed before calibrating if the SETUP switch is set to OFF. Refer to [Chapter 1](#) if needed.

## Gain Jumper

The gain setting for the I 10 must match the sensitivity of the load receiver being used. Gain can be set for one of three levels; 1 mV/V, 2 mV/V or 3 mV/V. Gain is set at 2 mV/V when originally shipped.

Place the gain jumper in the appropriate position on the rear panel for the desired gain setting (see diagram).



Gain Jumper



1 mV/V



2 mV/V



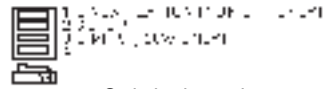
3 mV/V

## Linearization Switch

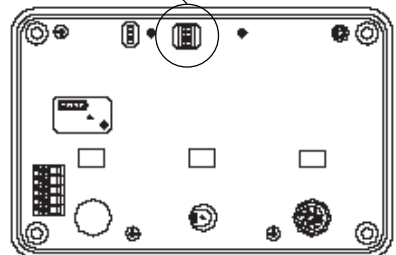
If linearization is to be performed (3 point calibration), Switch 1 on the rear panel must be in the ON position. For 2 point calibration, it should be OFF.



3 point linearization is NOT available for Legal For Trade applications.



Switch shown in ON position.



## Calibration Procedure

Make sure there is no load on the platform.

1. Press and hold **TAPE** to access the Setup mode.

Release **TAPE** when "SETUP" is displayed.

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

CAL

### Dead Load Adjustment

3. When **TAPE** is released,

"dLOAD" will be displayed, then the current dead load setting.

dLOAD

4. If dead load is "good", then "CAL 0" will be displayed. Proceed to step 5.

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:

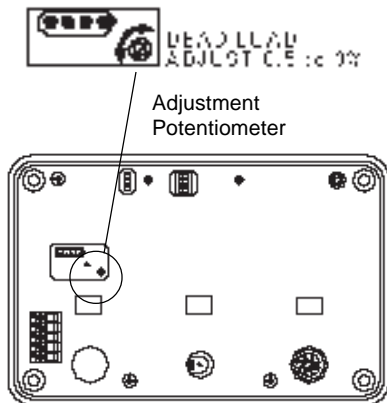
dL 3.5 %

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

Press **TAPE** to enter the dead load.



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





## Calibration


5. When "CAL 0" is displayed, press




"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.

6. For 2 point calibration, place a weight equal to the Calibration Point on the load receiver, then press  and proceed to step 9.

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

7. "buSY" will be displayed briefly, then "CAL F" will be displayed.
8. Place a weight equal to the Calibration Point on the load receiver, then press .
9. "buSY" will be displayed briefly, then "good", then "SEtUP".

When "SEtUP" is displayed, the I 10 is calibrated.

Press  to return to the weighing mode.

CAL 0

buSY

CAL F

or

CAL L

buSY

CAL F


buSY

good

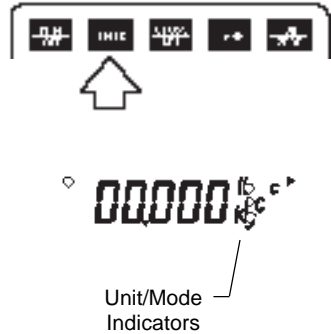
## **Chapter 6: Weighing, Parts Counting and Printing**

The weighing units and modes available to you depend on which ones were enabled using the *Unit Selection* feature ([see Chapter 4](#)).


## Selecting a Weighing Unit or Parts Counting

To select one of the available weighing units for use, repeatedly press  until the desired indicator appears on the display.

If the desired indicator does not appear, refer to [Unit Selection in Chapter 4](#).




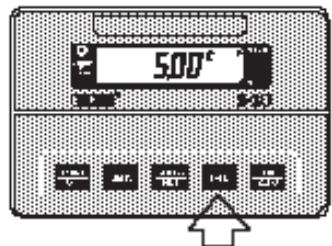
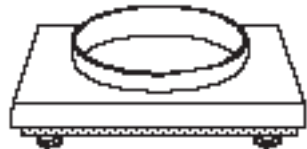
## Weighing

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 load receiver.
4. Read the weight on the display.

## Taring

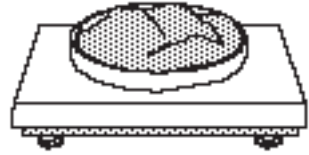
When weighing material or objects that must be held in a container, taring enables the indicator to save the container's weight in memory, and subtract it from the gross weight on the load receiver.

1. Press  to obtain a zero reading on the display.
2. Place an empty container on the load receiver and read its weight on the display. Notice that the GROSS indicator is ON.

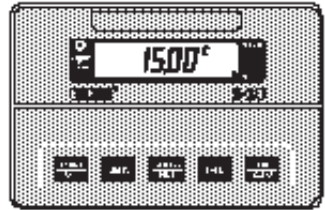


3. Press **TARE** .

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 **GROSS NET** .

Repeatedly pressing **GROSS NET** 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 load receiver.

## Parts Counting

Parts Counting mode must first be enabled in the Unit Selection menu before it can be used. See *Unit Selection* in Chapter 4.

In this mode, the I 10 calculates and displays the quantity of parts you place on the load receiver. Since the indicator determines the quantity based on the average piece weight of a single part, all parts must be reasonably uniform in weight.

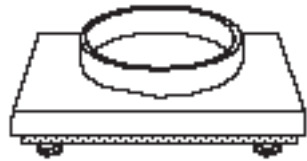
To perform parts counting, use the following procedure:



If you will be using a container to hold parts on the load receiver, "PC Err" in the Unit Selection menu must be set to OFF.

1. Repeatedly press **UNIT** until "Con" is displayed along with the parts counting indicator.
2. If a container is being used, place it on the load receiver.
3. Press **TARE**.
4. When **TARE** is released, "Add05" will be displayed.


Con PC




Add05

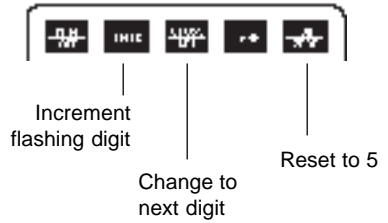
The indicator needs a sample of the parts to use as a reference for counting. The factory setting for the sample size is 5 parts, but this can be changed to any value between 5 and 99.

5. To change the sample size, use the front panel buttons as follows:

Press  to increment the flashing digit.

Press  to proceed to the next digit.

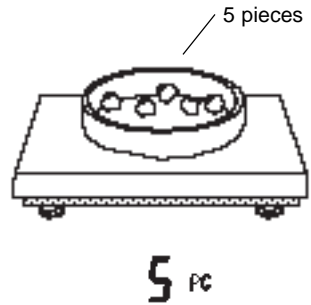
Press  to reset the number to the minimum sample size allowed (5 pieces).




6. Place the sample number of pieces on the load receiver, then press



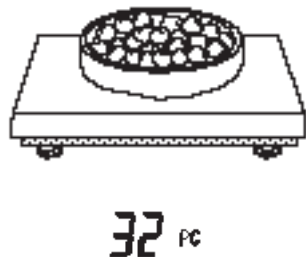
7. The I 10 will calculate the average piece weight based on the net weight of the sample, and then display the number of parts on the load receiver.



If "AddXX" is displayed, the sample is too small to provide results within the selected error level ("PCErr" in the Unit Selection menu - Chapter 4). "XX" represents the number of parts needed to provide a sufficient sample.


Add the required number of parts and press  again.


8. Add parts to the container as desired and read the quantity on the display.





9. To display the net weight of the parts on the load receiver, press



Pressing  a second time will display the GROSS weight (container and parts).

Pressing  a third time will display the quantity again.

10. To exit or restart parts counting, press and hold  until "Con" is displayed.

Press  to exit parts counting and change to another weighing mode, or return to step 2 to restart parts counting.

## Printing

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

press .

The output format is illustrated under the "P" command in the [RS232 COMMAND TABLE](#) in Chapter 7. For more information on printing and using the RS232 interface, refer to [Auto Shut-off/RS232 Menu](#) in Chapter 4, and [RS232 Interface](#) - Chapter 7.

## **Chapter 7: RS232 Interface**

I 10 Indicators are equipped with a bi-directional RS232 compatible interface for communication with printers and computers.

When the I 10 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 I 10 to a computer enables operation from the computer, as well as receiving data such as displayed weight, weighing mode, stability status, etc.

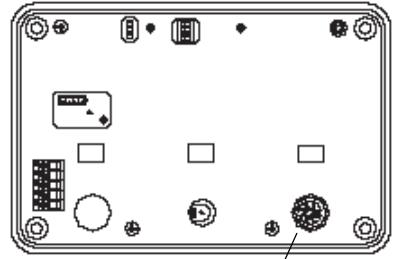
This chapter describes the hardware and software provided with the I 10.

## Hardware

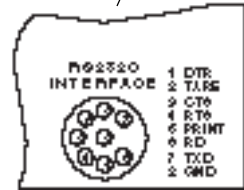
Connection to the interface is made using the 8-pin DIN receptacle on the rear of the I 10. The pinout and pin connections are shown on the security plate label.



The I 10 will not output data unless pin 3 is held in an ON state (+3 to +15 VDC). Interfaces not utilizing the CTS handshake may tie pin 3 to pin 1 to defeat it.



RS232  
Connector



## 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

## RS232 Commands

All communication is accomplished using standard ASCII format. Only the characters shown in the following table are acknowledged by the I 10. Any other commands, control characters or spaces are ignored.

Commands sent to the I 10 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 I 10 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																		
?	<p>Print current mode and stability status</p> <table border="1"> <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</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> <td>1</td> </tr> </table> <p>00 to 99 Blank if stable " ? " if unstable N = Net G = Gross lb, kg, C or PC</p>	Field:	Mode	Net	Stab	Adr	CR	LF	Length:	3	1	1	2	1	1				
Field:	Mode	Net	Stab	Adr	CR	LF													
Length:	3	1	1	2	1	1													
T	Same effect as pressing TARE button																		
M	Same effect as pressing UNITS button																		
P	<p>Print display data</p> <table border="1"> <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>1</td> <td>3</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> </tr> </table> <p>blank if positive "-" if negative</p> <p>Displayed weight sent right justified w/lead zero blanking.</p> <p>Same as "?" command</p>	Field:	Pol	Weight	Mode	Net	Stab	Adr	CR	LF	Length:	1	7	1	3	1	1	2	1
Field:	Pol	Weight	Mode	Net	Stab	Adr	CR	LF											
Length:	1	7	1	3	1	1	2	1											
Z	Rezeroes the I 10																		
N	Same effect as pressing GROSS/NET button																		
#G	Go To Mode "#" where "#" = 0, 1, 2 or 3 as follows: 0 = lb, 1 = kg, 2 = custom unit, 3 = parts counting																		
W or SGW	Send Gross Weight: The I 10 will automatically switch to GROSS weight reading, then output display data.																		
#A	<p>Set Averaging Level to "#":</p> <table border="1"> <tr> <th>#</th> <th>Value</th> </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)**

<b>Command Character</b>	<b>Description</b>								
#0	<p>Set Auto Shut-off Timer to “#”: <b># Value</b></p> <table> <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> </table>	0	Always ON	1	2 minutes	2	5 minutes	3	9 minutes
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	<p>Saves all menu selections made via the interface. I 10 outputs the message “Data Saved” when completed.</p> <p>If this command is not used after making menu changes, changes will not be stored when I 10 is turned off.</p>								
V	Output software version number, for example: 98100-77 V1.0.								

## **Chapter 8: Legal For Trade Sealing**

When the I 10 is installed in a 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 “At” (OFF) or “StAb” (output on stability) only.
- Display resolution may be set to a maximum of 10,000 divisions.
- Calibration is restricted to 2 Point Calibration.

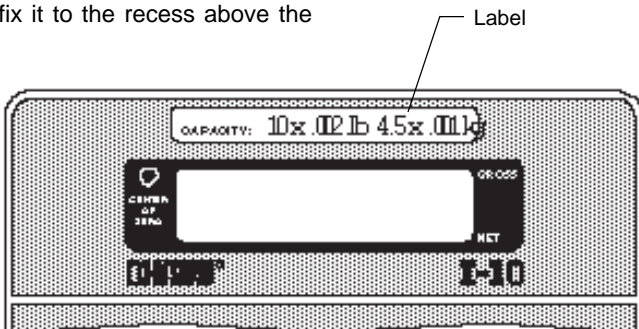
Verify that the I 10 has been configured according to these restrictions.



The I 10 capacity and readability must match that of the NTEP certified Class III or IIIL or Canadian Legal Metrology Branch General Class load receiver it will be used with.

## Labeling

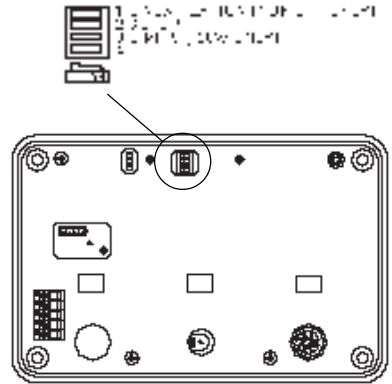
Type the capacity and resolution on the capacity label provided in the accessory kit and affix it to the recess above the display.



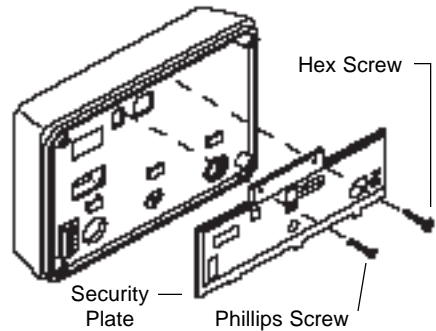
## Sealing

After the I 10 and load receiver have been evaluated and approved by a Weights and Measures official, the I 10 may be sealed as follows:

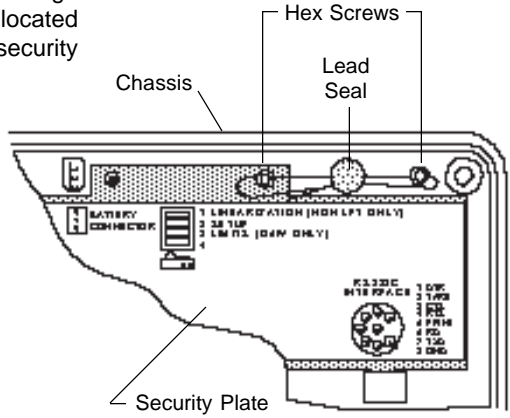
1. With the rear cover and security plate removed, set Switch 2 to the OFF position to disable access to menu settings.



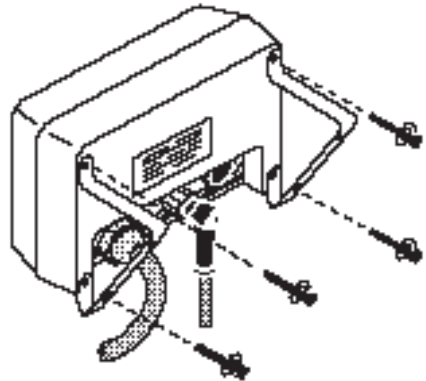
2. Install the security plate.



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 and mounting brackets.



## Chapter 9: Troubleshooting

The information in this chapter is intended to help identify and correct errors that may be made in installing or operating the I 10. It includes:

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

## Troubleshooting

SYMPTOM	PROBABLE CAUSE(S)	REMEDY
Unit will not turn on.	<p>Power cord not plugged in or properly connected.</p> <p>Batteries dead or not properly connected.</p>	<p>Check power cord connections.</p> <p>Make sure adapter connector is plugged all the way into the indicator.</p> <p>Check battery connector. Replace alkaline batteries or recharge nicad batteries.</p>
Cannot zero indicator, or will not rezero when turned on.	Load on load receiver exceeds allowable zero % entered in "ZERO" parameter of Program Constants menu (see Chapter 4).	<p>Remove load on load receiver to less than entered zero %.</p> <p>Change allowable zero % in "ZERO" parameter of Program Constants menu (see Chapter 4).</p>
Center of Zero display indicator erratic or does not appear with no load on load receiver.	Load receiver motion or disturbances exceed center of zero criteria.	<p>Remove disturbances or reduce motion.</p> <p>Increase averaging level in AL menu.</p>
Cannot display weight in desired weighing unit.	Desired unit not set to ON in Unit Selection menu.	<p>Enable desired unit (see Chapter 5).</p> <p>Only KG and LB are available when LFT is set to ON.</p>
Unable to tare (front panel or RS232 command).	Display is negative.	Remove load, zero indicator, replace load and tare again.

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
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 I 10 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.
PCErr	Parts counting error. <a href="#">See Chapter 6.</a>
Err0	Invalid memory checksum; indicates hardware error. Checksum is verified each time the I 10 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. <a href="#">See Chapter 4.</a>
tohi	Calibration/Linearization Error. Weight may have been added during calibration procedure when no load should be on load receiver.
toLo	Calibration/Linearization Error. Incorrect weight placed on load receiver during calibration procedure.

## Care and Maintenance

To keep your I 10 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.
- Do not allow any liquid to flow inside the I 10.

## 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 10: Specifications, Replacement Parts and Accessories**

## SPECIFICATIONS

MODEL	I 10
Capacity (lb/kg)	to 199,999*
Graduation (readability) (lb/kg)	0.00001 to 50*
Displayed resolution	1:10,000 LFT or 1:40,000 maximum*
Weighing modes	lb, kg, custom unit, parts counting*
Over range capacity	Capacity plus 3%
Stabilization time	3 seconds
Auto-zero tracking capture range	OFF, 0.6, 1 or 3 divisions*
Zeroing range	2%, 4% or 100% of capacity*
Internal resolution	1:110,000
Operating temperature	32° to 104°F/0° to 40°C
Operating humidity range	10 to 95% RH
Span calibration	push button (10 to 100% of load receiver capacity)*
Load cell excitation voltage	5 V dc
Load cell input sensitivity	1, 2, or 3 mV/V
Load cell drive	60mA at 5V (drive up to four 350 ohm load cells)
Display (in/cm)	LCD (0.6/1.5 high)
Power requirements	AC adapter: 100, 120, 220, 240, V ac 50/60 Hz or 6 alkaline "C" batteries or NiCad batteries
Typical battery life	500 hours with one load cell 225 hours with four load cells
Dimensions (W x H x D) (in/cm)	7.5 x 2.8 x 5/19 x 7.1 x 12.7
Net weight (lb/kg)	2.5/1.2
Shipping weight (lb/kg)	4/1.9

**\* User selectable**

Environmental classification	NEMA 1, IP40
NIST 	NIST HB44 Class III and III L n <sub>max</sub> 10000 NTEP Certificate of conformance 88-081 A1
Electrical ratings (for power adapter only)	100/120V UL1910 CSA C22.2 no. 66 and 107 220V (Euro)/240V (UK) IEC 380 240V (Australian) IEC 950
Canadian weights and measures number	General class notice of approval no. S.WA. 4469

## Replacement Parts

<u>DESCRIPTION</u>	<u>OHAUS PART NO.</u>
AC Adapter (100 V ac)	90524-59
(120 V ac)	90524-58
(220 V ac)	90524-60
(240 V ac)	90524-61

## Accessories

<u>DESCRIPTION</u>	<u>OHAUS PART NO.</u>
Wall Mount Accessory Kit Painted	77688-01
Wall Mount Accessory Kit Stainless Steel	76972-00
Tower Accessory Kit	77689-02
Tower Accessory Kit Stainless Steel	78177-01
NiCad Rechargeable Battery Accessory Kit	77015-00
RS232 8 pin DIN Connector	90675-01
Base Mount Accessory Kit Painted	78187-01
Base Mount Accessory Kit Stainless Steel	78187-02

## **Appendix 1: Common Custom Unit Conversions**

The table on the following page lists several commonly used conversion factors for the custom unit feature.

## Conversion Factors

Keep in mind that the load receiver being used must have the appropriate capacity and resolution for the desired custom unit.

The I 10 automatically adjusts the custom unit graduations so that the custom unit divisions do not exceed the calibrated divisions. For example, a 50 x 0.01 lb scale has 5000 divisions. The I 10 will display ounces for the custom unit as 800 x 0.2 oz, or 4000 divisions.

<b>Desired Custom Unit</b>	<b>I 10 Calibration Unit</b>	<b>Custom Unit Decimal Point Position</b>	<b>Conversion Factor</b>
Tons	Pounds	_____.	2000.0
Ounces	Pounds	_._____	0.0625
Ounces Troy	Pounds	_._____	0.0686
Pounds Troy	Pounds	._____	.82286
Grams	Pounds	._____	.00220
Grams	Kilograms	_._____	0.0010
Metric Tons	Kilograms	_____.	1000.0

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## **Limited Warranty**

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

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

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



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