

B140

Counting Scale



User Instructions

© Avery Weigh-Tronix, LLC 2013. All rights reserved.

No part of this publication may be reproduced, stored in an electronic retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written consent of the copyright owner, or as permitted by law or under license. Full acknowledgment of the source must be given. Avery Weigh-Tronix is a registered trade mark of the Avery Weigh-Tronix, LLC. This publication was correct at the time of going to print however, Avery Weigh-Tronix, LLC reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service at any time.

All third party brands and product names used within this document are trademarks or registered trademarks of their respective holders.

Table of Contents

	<i>page</i>
Table of Contents	3
Chapter 1 General information and warnings	5
About this manual	5
Text conventions	5
Special messages	5
Installation	6
Electrical installation	6
Pluggable equipment	6
Safe handling of equipment with batteries	7
Routine maintenance	7
Cleaning the machine	7
Training	7
Sharp objects	8
FCC and EMC declarations of compliance	8
Declaration of Conformity	9
Chapter 2 Introduction	10
Battery Installation	10
Front Panel	12
Annunciators	12
Key Functions	13
Chapter 3 Operation	15
Simple Weighing Mode	15
Simple Weighing	15
Tare Weighing	15
Counting Mode	16
Counting Information	16
Counting by Sampling	16
Counting by Entering a Known Piece Weight	17
Store or Recall a Piece Weight	18
Set and Recall a Preset Tare Weight	19
Counting Using Upper and Lower Count Limits	19
Accumulating Counts	20
RS232 Interface and RTC (Real Time Clock)	22
In General Counting mode:	22
In General Counting and Display Accumulation mode:	22
Chapter 4 Calibration	23
Chapter 5 Configuration	25
Setting LED Brightness	25
Setting the Auto-Off Timer	25
View Voltage and A/D Counts	26
Set RS232 Parameters	26
Set Date and Time	27
Set Scale's ID	28
Displayed Messages	28
Chapter 6 Display Characters	29
Chapter 7 Specifications	30

1 General information and warnings

1.1 About this manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1 and 1.1 headings shown above. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

1.1.1 Text conventions

Key names are shown in **bold** and reflect the case of the key being described. This applies to hard keys and onscreen or soft keys.

Displayed messages appear in ***bold italic*** type and reflect the case of the displayed message.

1.1.2 Special messages

Examples of special messages you will see in this manual are defined below. The signal words have specific meanings to alert you to additional information or the relative level of hazard.



ELECTRICAL WARNING!
THIS IS AN ELECTRICAL WARNING SYMBOL.
ELECTRICAL WARNINGS MEAN THAT FAILURE TO FOLLOW SPECIFIC PRACTICES OR PROCEDURES MAY RESULT IN ELECTROCUTION, ARC BURNS, EXPLOSIONS OR OTHER HAZARDS THAT MAY CAUSE INJURY OR DEATH.



CAUTION!
This is a Caution symbol.
Cautions give information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.



NOTE: *This is a Note symbol. Notes give additional and important information, hints and tips that help you to use your product.*

1.2 Installation



DANGER: RISK OF ELECTRICAL SHOCK. NO USER SERVICEABLE PARTS. REFER TO QUALIFIED SERVICE PERSONNEL FOR SERVICE.

1.3 Electrical installation



CAUTION: The power cable must be connected to an earth-grounded electrical outlet. The electrical supply must have a circuit breaker with an appropriate rating to protect from over-current conditions.

For your protection, all electrical (110V or 230V) equipment used out of doors or in wet or damp conditions should be supplied from a correctly fused power source and protected by an approved ground fault protection device (RCD, GFCI etc.)

IF IN DOUBT SEEK ADVICE FROM A QUALIFIED ELECTRICIAN.

1.3.1 Pluggable equipment

Pluggable equipment must be installed near an easily accessible socket outlet.

1.3.2 Safe handling of equipment with batteries



CAUTION: *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

ATTENTION: *Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.*

1.4 Routine maintenance



IMPORTANT: *This equipment must be routinely checked for proper operation and calibration. Application and usage will determine the frequency of calibration required for safe operation.*

Always turn off the machine and isolate from the power supply before starting any routine maintenance to avoid the possibility of electric shock.

Make sure that it is placed securely on a flat and level surface.

1.5 Cleaning the machine

Table 1.1 Cleaning DOs and DON'Ts



DO	DO NOT
Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent	Attempt to clean the inside of the machine
	Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions
Spray the cloth when using a proprietary cleaning fluid	Spray any liquid directly on to the display windows

1.6 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the machine on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

1.7 Sharp objects

Do not use sharp objects such as screwdrivers or long fingernails to operate the keys.

1.8 FCC and EMC declarations of compliance

United States

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.

Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Countries

WARNING: This is a Class A product. In a domestic environment, this product may cause radio interference in which the user may be required to take adequate measures.

1.9 Declaration of Conformity



Brecknell, a trading name of Avery Weigh-Tronix Ltd.
 Foundry Lane, Smethwick, West Midlands, B66 2LP, England

	Declaration of Conformity Verklaring van Overeenstemming Déclaration de Conformité	Konformitätserklärung Dichiarazione di conformità Declaración de Conformidad
--	---	---

Manufacturer Type Avery Weigh-Tronix Limited Brecknell B140	Fabrikant Type Avery Weigh-Tronix Limited Brecknell B140	Fabricant Type Avery Weigh-Tronix Limited Brecknell B140	
corresponds to the requirements of the following EC directives:			
EMC Directive	2004/108/EC	Directive CEM	2004/108/CE
Low Voltage Directive	2006/95/EC	Directive Basse Tension	2006/95/CE
The applicable harmonised standards are:			
EN 55024:2010	EN55022:2010 EN61000-3-2:2006+A2:2009 EN61000-3-3:2008	EN 55024:2010	EN55022:2010 EN61000-3-2:2006+A2:2009 EN61000-3-3:2008
Avery Weigh-Tronix Limited Reg. Office: Foundry Lane, Smethwick, West Midlands B66 2LP, England. Registered in England No: 595129			Avery Weigh-Tronix Limited Reg. Office: Foundry Lane, Smethwick, West Midlands B66 2LP, England. Registered in England No: 595129

Hersteller Typ Avery Weigh-Tronix Limited Brecknell B140	Produttore Modello Avery Weigh-Tronix Limited Brecknell B140	Fabricante Tipo Avery Weigh-Tronix Limited Brecknell B140	
entspricht den Anforderungen folgender EG-Richtlinien:			
EMV-Richtlinie	2004/108/EG	Directiva CME	2004/108/CE
Niederspannungs Richtlinie	2006/95/EG	Directiva de baja tensión	2006/95/CE
Die angewendeten harmonisierten Normen sind:			
EN 55024:2010	EN55022:2010 EN61000-3-2:2006+A2:2009 EN61000-3-3:2008	EN 55024:2010	EN55022:2010 EN61000-3-2:2006+A2:2009 EN61000-3-3:2008
Avery Weigh-Tronix Limited Reg. Office: Foundry Lane, Smethwick, West Midlands B66 2LP, England. Registered in England No: 595129			Avery Weigh-Tronix Limited Reg. Office: Foundry Lane, Smethwick, West Midlands B66 2LP, England. Registered in England No: 595129

Signature/Name Handtekening/Naam Signature/Nom Unterschrift/Name Firma/Nome Firma/Nombre	 K. Detert Global Head of R&D	Authorised signatory for Avery Weigh-Tronix Limited Namens van Avery Weigh-Tronix Limited Signataire autorisé d'Avery Weigh-Tronix Limited Unterschriftsberechtigter für Avery Weigh-Tronix Limited Firmatario autorizzato per Avery Weigh-Tronix Limited Firmante autorizado para Avery Weigh-Tronix Limited	Date Datum Date Datum Data Fecha
		25 March 2013	

2 Introduction

This manual covers the Model B140 coin counting scale. Please read all operating instructions carefully before use.

Unpack the scale and install the battery if it was not factory installed. Plug the charging unit into a properly grounded outlet. The charging plug fits into a receptacle on the bottom of the scale in the left rear corner. Charge the battery for a full 12 hours before using the scale. Battery life when fully charged is approximately 20 hours.

Place the scale on a stable, level surface in an area free of drafts.

Level the scale using the adjustable feet and the bubble level at the lower left of the front panel. Tighten the locking ring on each foot once the scale is level.

Supply power to the scale by moving the power switch to ON. The power switch is located on the bottom of the scale.

Lo.bAt is displayed in the VALUE / WEIGHT window when the battery voltage gets low. If voltage drops too low for operation, a beeper will sound for two minutes before the scale automatically shuts off.

The battery will charge while operating the scale on AC power.

2.1 Battery Installation

Follow these steps if you need to install the battery.

1. Remove the screw in the battery compartment lid on the bottom of the scale. See [Figure 2.1](#).



Figure 2.1 Removing the battery compartment lid screw

2. Connect the red wire to the red battery terminal and the black wire to the black battery terminal. See [Figure 2.2](#).



Figure 2.2 Connecting the battery

3. Wrap the supplied foam padding around the battery and place in the compartment as shown. Replace the battery cover and tighten the screw. See [Figure 2.3](#).



Figure 2.3 Battery in place with padding



To improve battery life, use the power switch to turn off the scale.

2.2 Front Panel

The front panel, shown in [Figure 2.4](#), consists of three display windows: COIN TYPE / PIECE WEIGHT, COUNT and VALUE / WEIGHT, the keypad, ten annunciators and the bubble level window.



Figure 2.4 B140 front panel

2.2.1 Annunciators

Annunciators are bright LEDs next to symbols or text. They appear below the three displays and each is explained below.

Under the COIN TYPE/PIECE WEIGHT display:

- Zero* This lights when the weight on the scale is at 0.
- Tare* This lights when a tare is in effect. Weight displayed is net weight.
- kg* This lights when the unit of measure in the VALUE / WEIGHT display is kilograms.
- lb* This lights when the unit of measure in the VALUE / WEIGHT display is pounds.

Under the COUNT display:

- Total* This lights when total value or counts is displayed

Under the VALUE/WEIGHT display:

- STABLE** This lights when the scale is stable.
- AC** This lights when the AC power is connected to the scale.
- CHG** This lights when the battery is charging.

2.2.2 Key Functions

Each of the keys shown in [Figure 2.5](#) is explained below.

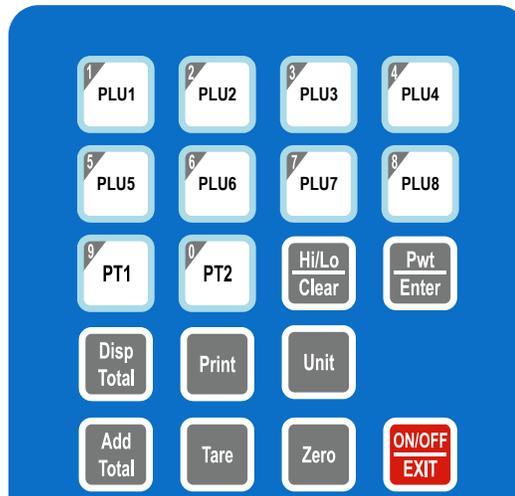


Figure 2.5 B140 keypad

- 0-9** Use for keyboard entry of piece weight, sample size, and upper and lower limit settings.
- PLU1-PLU8** In Counting mode use these keys to recall a piece weight from memory PLU1 through PLU8.
- PT1/PT2** In Counting mode, use these keys to recall a preset tare from PT1 or PT2.
- Hi/Lo** In Counting mode, use this key to set an upper (higher) or lower limit quantity for the count check feature.
- Clear** In Counting mode, use this to erase a keyed in value from the display while inputting data. While displaying accumulation data, this key will clear the accumulator memory to 0.
- Pwt** In Counting mode, use this key to enter a piece weight (by numeric entry from keyboard or sample a known quantity of items to get piece weight).
- Enter** Use to confirm or save entered data from keyboard or confirm the operation.
- Disp Total** Use to display accumulation of piece counts in Counting mode or display accumulation of value of one kind of coin or one kind of currency in Coin Counting mode.

Add Total	Use to add the displayed counts to a piece count accumulator (Memory +) in Counting mode, or to add the displayed value to a value accumulator in Coin Counting mode.
Print	Use to send data to the RS232 port, if it installed
Unit	In Counting mode, use to switch displayed weights or piece weight between kg and lb.
Currency	In Coin Counting mode, use to select type of currency from US dollars, Great British Pounds or Euro.
Zero	Set a new zero point. Zero range capability is $\pm 2\%$ of scale capacity.
Tare	Use to zero off, up to 100% of capacity, an empty container or weight. Use of tare will reduce the scale's maximum weight capacity by the tare value stored.
ON/OFF	Use to turn off display for extended battery life or to reset the scale to normal weighing mode.
EXIT	Ignore a keyed value and Exit from input data mode.
ON/OFF/EXIT+PT2	Use to enter calibration mode
ON/OFF/EXIT+PLU1	Use to enter the LED's brightness setup mode
ON/OFF/EXIT+PLU2	Use to enter the auto-off time setup mode
ON/OFF/EXIT+PLU3	Use to view A/D counts or voltage
ON/OFF/EXIT+PLU4	Use to enter RS232 setup mode
ON/OFF/EXIT+PLU5	Use to enter the date and time setup mode
ON/OFF/EXIT+PLU6	Use to enter ID setup mode

3 Operation

This section covers the scale operations of simple weighing, counting, accumulation, RS232 interface, etc.

3.1 Simple Weighing Mode

3.1.1 Simple Weighing

1. Power up the scale and zero the display, if necessary, by pressing the **Zero** key. Be sure the scale is displaying weight in your preferred unit of measure. Press the **Unit** key, if necessary.
2. Place item(s) to be weighed on the scale ...
Weight of the item(s) is displayed in the WEIGHT window.
3. Remove the item(s) from the scale and repeat steps 1 through 3 to weigh the next item(s).

3.1.2 Tare Weighing

If you want to do net weighing, such as weighing objects in a container, follow these steps:

1. Power up the scale and zero the display, if necessary, by pressing the **Zero** key. Be sure the scale is displaying weight in your preferred unit of measure. Press the **Unit** key, if necessary.
2. Place the item to be tared (usually a container) on the scale ...
Weight of the item is displayed in the WEIGHT window.
3. Press the **Tare** key ...
The weight is tared, **0** weight is displayed and the *Tare* annunciator lights.
4. Place item(s) to be weighed on the scale ...
Net weight of the item(s) is displayed.
5. To remove a tare, remove everything from the scale platform and press the **Tare** key or press the **Zero** key if gross weight is less than 2% of capacity ...
0 weight is displayed and the *Tare* annunciator light turns off. The unit is now in gross weighing mode.
6. Repeat the steps above for other tare weights.

3.2 Counting Mode

In Counting mode, you can do the simple weighing tasks mentioned in *Simple Weighing Mode* on page 15, input a piece weight by keypad or by sampling the weight of a known quantity of the items, and accumulate the quantity of different items. The scale will display weight, piece weight, count of the items, and send data to RS232 interface.

3.2.1 Counting Information

If there is no piece weight, the scale will not go into count mode, it will display ----- in the COUNT window.

Once a piece weight is established it remains active until another piece weight is automatically calculated by a sampling process or when input from the keypad.

After counting items, remove them and the display should return to zero. If not, press the **Zero** key.

A counting scale needs a minimum amount of weight to calculate counts with accuracy. It is recommended that the sample weight be a minimum of 0.1% of scale capacity. The sample weight is the total weight of your sample items. The table below shows the minimum sample weights recommended to guarantee the most accurate counts.

Minimum sample Weight		
Scale Capacity	LB	Grams
15 kg / 33 lb	0.033 lb	15 grams

The minimum piece weight must be greater than or equal to:

Minimum Piece Weight		
Scale Capacity	LB	Grams
15 kg / 33 lb	0.0002 lb	0.1 grams

3.2.2 Counting by Sampling

Follow these steps to count items using the sampling method.



For count accuracy all items should be uniform in weight. Errors in count will occur if parts vary in weight.

1. Power up the scale use the **Zero** key, if necessary. Be sure the scale is displaying weight in the correct unit of measure. Press the **Units** key, if necessary.
2. Place a known number of objects on the scale. This is the sample weight the scale will use to calculate a piece weight.

3. Press and hold the **Pwt** key until ...

SPL.PCS is displayed in the PIECE WEIGHT window. Weight of the items is displayed in the WEIGHT window.

4. Use the numeric keypad to key in the number of objects you placed on the scale and press the **Enter** key to accept the keyed in number ...



*If you make an error in keying in the number, press the **Clear** key to clear the number in the COUNT window and re-key the correct number.*

The scale calculates the weight of each piece (the piece weight) and displays the count in the COUNT window.

5. Place the items to be counted on the scale ...

The total weight, piece weight and count of the items will be shown in the three display windows respectively.

6. Remove the items from the scale and repeat steps 5 and 6 to count items of the same piece weight.

7. Repeat steps 1 through 6 to count items of a different piece weight.



*(1) Counting can also be done while using a tare. After you have set the piece weight (step 4), place the item to be tared on the scale, press the **Tare** key and continue with counting as described in step 5.*

(2) The original piece weight will be held in memory until a new piece weight has been determined.

(3) When a new piece weight is used, the accumulator memory for this piece weight is cleared!

3.2.3 Counting by Entering a Known Piece Weight

You can enter a known piece weight and begin counting without sampling.

This can also be used with the tare function active. After you have set the piece weight, place the item to be tared on the scale, press the **Tare** key and continue with counting as described below.

1. Power up the scale and press the **Zero** key, if necessary. Be sure the scale is displaying weight in the correct unit of measure. Press the **Units** key, if necessary.
2. Press the **Pwt** key ...

PC.t is displayed in the COUNT window and zeroes are displayed in the WEIGHT and PIECE WEIGHT windows.

3. There is a decimal point already in the PIECE WEIGHT window. Use the numeric keypad to key in the known piece weight so that the piece weight in the PIECE WEIGHT window is correct. Press the **Enter** key to accept this piece weight.



*If you make an error in keying in the number, press the **Clear** key to clear the number in the COUNT window and re-key the correct number.*

The counting mode activates using the entered piece weight.

4. Place the items to be counted on the scale ...

The total weight, piece weight and count of the items will be shown in the three display windows respectively.

5. Remove the items from the scale and repeat steps 4 and 5 to count items of the same piece weight.
6. Repeat steps 2-5 to count items of a different piece weight.



*(1) Counting can also be done while using a tare. After you have set the piece weight (step 3), place the item to be tared on the scale, press the **Tare** key and continue with counting as described in step 4.*

(2) The original piece weight will be held in memory until a new piece weight is set. Turn the scale off, then on to return to coin counting mode.

(3) When a new piece weight is used, the accumulator memory for this piece weight will be cleared to 0!

3.2.4 Store or Recall a Piece Weight



*There are eight memories for use with eight different piece weights. Access these with the **G1** through **G8** keys. See specific instructions below.*

If you want to store the currently active piece weight for later recall, follow these steps:

1. Press and hold the **PLU_x** key ($x=1-8$) you want to use until ...
ST.PLU_x? ($x=1-8$) is displayed. This stands for *Store current piece weight to memory PLU_x?*
2. Press **Enter** to confirm or press **EXIT** to ignore.
3. If you want to recall a stored piece weight from a memory, press the desired **PLU1-PLU8** key ...

RC.PLU_x? ($x=1-8$) is briefly shown then the piece weight becomes active and is shown in the PIECE WEIGHT window.

4. If you want to change a stored piece weight, press the **Pwt** key and input the piece weight you want, then use step 1 to replace the stored piece weight with new piece weight.



Piece weight can not be set to zero.

3.2.5 Set and Recall a Preset Tare Weight

You can store two preset tare weights; one each in the PT1 and PT2 memories. These can be recalled at any time. Follow these steps:

1. Press and hold **PT1** or **PT2** key until ...
PT1/PT2 is shown in the COUNT window. Gross weight is shown in the WEIGHT window.
2. Use the numeric keys to input a tare weight and press **Enter** to save. While entering the value, if you make a mistake, press the **Clear** key to delete.
3. To recall a stored preset tare from memory, press **PT1** or **PT2** key.
The preset tare weight in PT1 or PT2 memory becomes the active tare weight. The *Tare* annunciator lights up except if the preset tare is 0.
4. To clear a stored tare weight, in step 1, input 0 then press **Enter** to accept.

3.2.6 Counting Using Upper and Lower Count Limits

You can do counting with an alarm to tell you when you have an acceptable number of items on the scale. This can be handy when you want to repeatedly fill bags to the same count. Use the instructions below to set an upper count limit and a lower count limit. When your counts fall between these numbers (inclusive) a beeper sounds to let you know you've hit your target number.

1. Turn the scale on and press the **Zero** key, if necessary. Be sure the scale is displaying weight in your preferred unit of measure. Press the **Units** key, if necessary.
2. Use sampling or enter a known piece weight to set a piece weight.
3. Press the **Hi/Lo** key ...
Hi. PCS is shown in the PIECE WEIGHT window and a number appears in the COUNT window.
4. Press the **Clear** key to clear the number from the COUNT window. Key in the upper acceptable count of items. (You can set the upper and lower limit to the same number to have the alert beeper sound just on that value.) Press the **Enter** key to accept this number ...
Lo. PCS is shown in the PIECE WEIGHT window and a number appears in the COUNT window.

5. Press the **Clear** key to clear the number from the COUNT window. Key in the lower acceptable count of items. (You can set the upper and lower limit to the same number to have the alert beeper sound just on that counts.) Press the **Enter** key to accept this number ...

The scale returns to count mode.

6. Place items to be counted on the scale until you hear the alert beeper ...

The count will be within the upper and lower limits you have set.

7. Remove the items from the scale and repeat steps 6 and 7 to weigh the next batch of items.



*(1) Counting with upper and lower limits can be done while using a tare. After you have set the piece weight (step 2), place the item to be tared on the scale, press the **Tare** key and continue with counting as described.*

(2) Upper and lower limits will remain in memory until you reset the limits to 0.

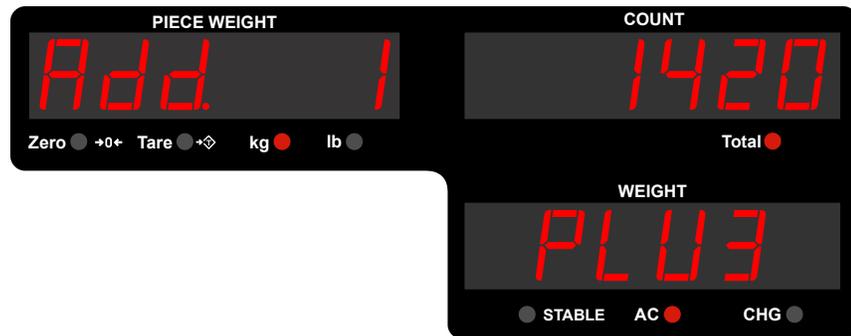
3.2.7 Accumulating Counts

The scale can accumulate the counts from different weighments into a total value stored in memory. Follow these steps to perform accumulations.

1. Follow the different counting methods described in *Counting by Sampling on page 16* or *Counting by Entering a Known Piece Weight on page 17* to count items placed on the scale.

- When the count is displayed, press the **Add Tot** key to accumulate the count to memory ...

The count is added into memory and following is an example of what is briefly displayed:



Add.xxx is displayed in the PIECE WEIGHT window. **xxx** = the number of accumulations. You can accumulate up to 999 times. In this example there has been only **1** accumulation.

The total accumulated count is shown in the COUNT window. In this example the number of pieces counted is **1420**.

The WEIGHT window shows the piece weight memory used for this count. In this example **PLU3** was used. If you are using a temporary piece weight instead of a memory channel, **TMP** is displayed instead.

The display automatically returns to the normal counting mode after three seconds.

- Remove the items, allow the scale to return to zero and add more pieces to count. Press the **Add Tot** key to accumulate the counts. Repeat this step until all the pieces you want to count have been weighed and accumulated.
- To view the accumulator data, press the **Disp Tot** key ...

Below is an example of what is displayed:



You can see that a total of four accumulations have occurred, a total of 5642 pieces have been counted and that the piece weight stored in the PLU3 memory location was used.

- To clear the accumulator, press the **Clear** key while the accumulated data is displayed.

6. The scale will not accumulate more than 999 times or 999999 counts. If this occurs the display will show **DSP.OVR**. This means the display is over range.



(1) Remove the counted items from the scale and let the scale return to a stable condition before you count more items and perform the next accumulation.

(2) There are nine accumulator memories for nine different items; PLU1 - PLU8 piece weight channels and a temporary piece weight. That means different piece weights have their own accumulator memory.

3.3 RS232 Interface and RTC (Real Time Clock)

The RS232 interface is optional. When it is installed current data can be sent to this port by pressing the **Print** key. The hardware real time clock (RTC) and backup battery are also optional. If the RTC is installed, you only need to modify the date and time when they are not correct. If RTC is not installed, a software RTC can be used. You need to set the date and time every time the scale is reset. If the scale's ID, date or time are active, they can be printed out. The format is similar to the examples below:

3.3.1 In General Counting mode:

```
Scale ID:          123456
Date:             2012-05-16      ; (YYYY-MM-DD)
Time:            16:23:53        ; (HH:MM:SS)
Gross:           12.5675kg
Tare:            0.0675kg
Net:             12.5000kg
Merchandise:     PLU1            ; (PLU1, PLU2...PLU8, Tmp)
Piece Weight:    0.0005kg
Count:           25000pcs
```

3.3.2 In General Counting and Display Accumulation mode:

```
Scale ID:          123456
Date:             2012-05-16
Time:            16:23:55
Merchandise:     PLU1            ; (PLU1, PLU2...PLU8, Tmp)
Piece Weight:    0.0005kg
Add number:      12
Total Count:     25000pcs
```

4 Calibration

You should periodically calibrate your scale to ensure accuracy. Follow these steps to calibrate the scale.

Before a two-point calibration (zero and span) you should have on hand at least 10% of the scale capacity in standard test weights. 100% of capacity is best. You should have at least 20% of scale capacity if zero-point and two span points are selected to be calibrated. Again, 100% of capacity is best.

Set the calibration switch to the ON position for calibrating. The switch is located on the bottom of the scale in a round depression in the base. Push the slide switch, shown in [Figure 4.1](#), to the position shown for calibration mode.



You can escape the calibration procedure at any time by pressing the **ON/OFF** key.

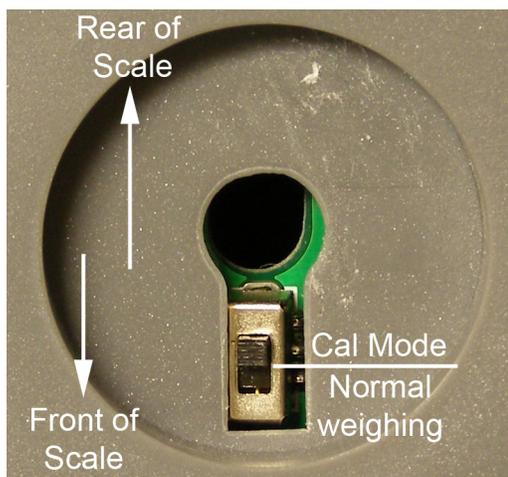


Figure 4.1 Calibration switch

1. To enter calibration mode, while in normal weighing mode, press and hold the **PT2** and **ON/OFF** keys at the same time until ...

The scale beeps and, if the calibration switch is in the ON position, the PIECE WEIGHT window shows **CAL. ON**. If the display shows **CAL.OFF**, change the calibration switch position. See [Figure 4.1](#).

The COUNT window shows **Unit. 1** or **Unit. 0**. If **Unit. 1** is displayed, the calibration unit of measure is pounds. If **Unit. 0** is displayed, the calibration unit of measure is kilograms.

2. Press the **Units** key to toggle between pounds and kilograms. When the unit you want is displayed, press the **Enter** key to accept it ...

The scale beeps and **UNLd** is displayed in the COUNT window. A number representing raw A to D counts is displayed in the WEIGHT window.

3. Remove all weight from the scale, wait for the scale to be stable (the Stable annunciator lights) and press the **Enter** key to capture the zero point ...

If the scale successfully captures the zero point, the scale beeps and **Lod1** (load test weight #1) is displayed in the COUNT window.

4. Load a test weight that is between 10% and 100% of full capacity onto the center of the weight platter and press the **Enter** key to capture span #1 ...

When the scale captures span #1, **INP. Ld** is displayed in the COUNT window and **0.000** is displayed in the WEIGHT window. **INP. Ld** stands for input load weight.

5. Use the numeric keys to enter the amount of weight loaded on the scale. Use the **Clear** key to delete an incorrect entry. Press **Enter** to confirm the weight value ...

The weight value is displayed in the WEIGHT window.

Lod2 (load test weight #2) is shown in COUNT window. This means load test weight #2 on the scale. This should be at least 10% of full capacity more than test weight #1 used in the previous steps.



If you are only using the zero point and only one calibration weight, input the same weight value for **Lod2** as you did for **Lod1** in steps 4 and 5 above. When **InP.Ld** is displayed, press **Enter** to confirm the weight value.

6. Load test weight #2 onto the center of weight platter and press **Enter** to capture span #2 ...

INP. Ld is displayed prompting you to enter the input load weight of test weight #2.

7. Use the numeric keys to enter the amount of weight loaded on the scale. Use the **Clear** key to delete an incorrect entry. Press **Enter** to confirm the weight value ...

unLd is displayed in the COUNT window. This stands for unload.

8. Remove the weight from the scale and after the scale is stable press the **Enter** key ...

The zero point is captured again and the scale goes through the start up routine and ends in normal weighing mode.

If there is any error in the calibration, the scale will show **CAL. Err.** The scale will try to return to the previous step.

9. If you have problems, press the **ON/OFF** key to exit the calibration mode and try the procedure again.

5 Configuration

5.1 Setting LED Brightness

Set the LED brightness by following these instructions:

1. In normal weighing mode, hold the **ON/OFF** and **PLU1** keys at the same time until ...

SEtUP is displayed in the PIECE WEIGHT window.

LEd.brt (LEd brightness) is displayed in the COUNT window, and **x** (x=1-3) is displayed in the WEIGHT window. This means that the LED brightness is currently set to **x**.

2. Press the 1, 2 or 3 numerical key to change the brightness level (Default setting: 2). Three is the brightest level. When the brightness you want is displayed, press the **Enter** key to save the setting ...

The scale will restart and returns to normal mode.

5.2 Setting the Auto-Off Timer

You can set an auto-off timer so that the scale will power down automatically after a period of inactivity. This functions only when the scale is powered by the battery.

1. From normal mode, press and hold the **ON/OFF** and **PLU2** keys at the same time until the scale beeps ...

SEtUP is displayed in the PIECE WEIGHT window.

A.oFF.t is displayed in the COUNT window.

The current value for the auto-off timer is displayed in the WEIGHT window. You can choose from 0 to 30 minutes. If you pick 0, auto-off is disabled and the scale will not power down automatically.

2. Key in the number of minutes of scale inactivity that will trigger the auto-off function and press the **Enter** key to accept this value ...

The scale will restart and return to normal mode.

5.3 View Voltage and A/D Counts

You can view the battery voltage and A to D counts for diagnostic purposes. Follow these steps:

1. With the calibration switch in the normal weighing mode and the scale in normal mode, press and hold the On/Off and PLU3 keys at the same time until the scale beeps ...

Vol. X.X is displayed in the PIECE WEIGHT window. **Vol.** stands for voltage and **X.X** is the current voltage of the battery. If no battery is installed or the connection is not complete, **Vol. 7.2-7.3** will be displayed.

Code is displayed in the COUNT window.

A to D counts (code) is displayed in the WEIGHT window.

When the current working voltage is lower than 5.7V, **Lo.Bat** will shown in the WEIGHT window.

When the voltage is lower than 5.5V, **Lo.Bat** will shown in the WEIGHT window and the beeper will sound for approximately two minutes before the scale turns itself off.

The A to D counts for an empty scale should be between 5000 and 100,000. This should be a positive number. The A to D counts for a scale at full capacity should be above 300,000. If the A to D counts are outside of these ranges or calibration and normal weighing cannot be done you scale's loadcell has been permanently damaged.

2. To exit this mode, press the **ON/OFF** key ...

The scale will restart and returns to normal mode.

5.4 Set RS232 Parameters

You can set the following RS232 parameters: Baud rate, Byte Format and when the content will be output. Follow these steps:

1. In normal mode, press and hold the **ON/OFF** and **PLU4** keys at the same time until ...

SEtUP is displayed in the PIECE WEIGHT window.

232.bps (RS232 Baud rate) is displayed in the COUNT window

xxxx (xxxxx = 1200-2400-4800-9600-19200) is displayed in the WEIGHT window. This means that the RS232 baud rate is currently set to **xxxxx**.

2. Press the **1**, **2**, **3**, **4** or **5** numerical key to change the baud rate (Default setting: 9600). When the desired baud rate is displayed, press the **Enter** key to save the setting ...

232.dFt (RS232 byte format) is displayed in the COUNT window.

xxx (xxx = 8N1, 7E1 or 7O1) is displayed in the WEIGHT window. This means that the RS232 byte format is currently set to **xxx**.

3. Press the **1**, **2** or **3** numerical key to change the byte format (Default setting: 8N1). When the wanted byte format is displayed, press the **Enter** key to save the setting ...

232.cft (RS232 output format) is displayed in the COUNT window.

x (x=0-1-2-3) is displayed in the WEIGHT window. This means that the RS232 output format is currently set to **x**.

X=0: disable RS232 output

X=1: output after scale is stable

X=2: output after **Print** key is pressed

X=3: output after scale is stable or **Print** key is pressed

4. Press the **0**, **1**, **2**, or **3** numerical key to change the output format (Default setting: 2). When the desired byte format is displayed, press the **Enter** key to save the setting ...

The scale restarts and returns to normal mode.

5.5 Set Date and Time

If a hardware RTC and backup battery are installed you can set the correct date and time. The date and time will run unless the scale is reset. It will then revert to default settings and date and time will need to be reset.

1. In normal mode, press and hold the **ON/OFF** and **PLUS** keys at the same time until ...

SEtUP is displayed in the PIECE WEIGHT window.

dAtE (date) is displayed in the COUNT window.

xx.xx.xx (YY.MM.DD) is displayed in the WEIGHT window. This means that the current date is **xx.xx.xx**.

2. Use the numeric keys to change the date number and press the **Enter** key to save the setting ...

tiME (time) is displayed in the COUNT window

xx.xx.xx (HH.MM.SS) is displayed in the WEIGHT window. This means that the current time is **xx.xx.xx**.

3. Use the numeric keys to change the time and press the **Enter** key to save the setting ...

The scale returns to normal mode.

5.6 Set Scale's ID

Set the scale's ID by following these instructions:

1. In normal working mode, hold the **ON/OFF** and **PLU6** keys at the same time until ...

SEtUP is displayed in the PIECE WEIGHT window.

id (ID) is displayed in the COUNT window.

xxxxxx is displayed in the WEIGHT window. This means that the scale's ID is currently set to **xxxxxx**.

2. Use the numeric keys to change the scale's ID and press the **Enter** key save the setting ...

The scale returns to normal mode.

5.7 Displayed Messages

Below are the screen messages you may see during operation of this scale and what they mean.

Err01	Scale overloaded
-----	Too many accumulations or accumulated counts too high
Err03	Weight signal is too small
Err04	The zero point is too high
Err05	The zero point is too low
Err12	The setting parameter(s) is not in normal range, or the parameter has not been set
CAL.Err	There is an error in calibration: maybe the loaded weight is too small or the input weight is not correct.
Err30	Input signal of ADC is over max. range
Err31	Input signal of ADC is below min. range
CAP	Displaying data relating to capacity
UoL	Displaying data relating to voltage
Add	The accumulated data
PC.t	Data about piece weight
SPL.PCS	Data about sample pieces
uP.PCS	Data about upper limit pieces
Lo.PCS	Data about lower limit pieces
unLd	Unload weight on the platter
InP.Ld	Input loaded weight's number
CAL.oN	Calibration enable switch is ON
CAL.oFF	Calibration enable switch is OFF
DSP.OVR	Displayed data is over 999999 or down -99999 (not include decimal point)

6 Display Characters

ASCII	LCD/LED Show	ASCII	LCD/LED Show	ASCII	LCD/LED Show
0		A		N	
1		B		O	
2		C		P	
3		D		Q	
4		E		R	
5		F		S	
6		G		T	
7		H		U	
8		I		V	
9		J		W	
		K		X	
		L		Y	
		M		Z	

7 Specifications

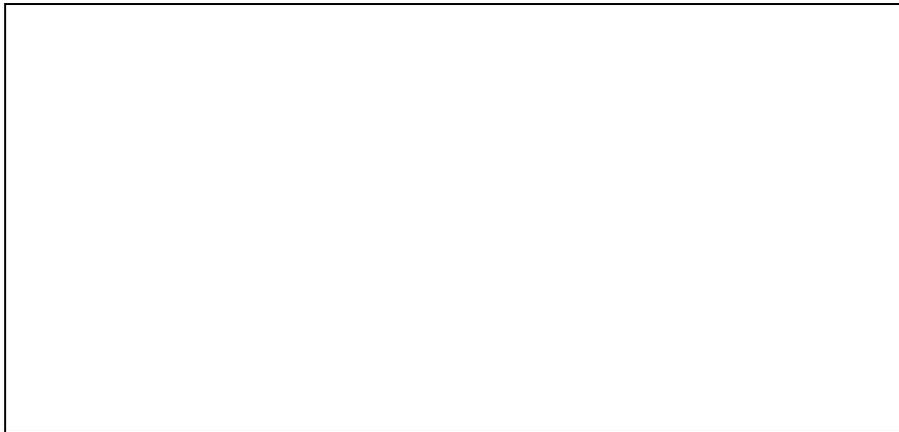
Model	B140-1530
Capacity	15kg/30lb
Display Resolution	15kg x 0.0005kg / 33lb x 0.001lb
Max. Display Weight	15.0045kg / 33.079lb
Minimum Sample Weight	15g/0.033lb
Minimum Piece Weight	0.1g/0.0002lb
TARE Range	0-100% of full scale capacity
ZERO Range	Power on: calibration zero point $\pm 10\%$ of full scale capacity;
Zero key: power on zero point $\pm 2\%$ of full scale capacity	
Display Range	-99999 to 999999 (without decimal point)
RS232 Interface	optional
Hardware Real Time Clock	optional
Display	3x6 digits, 0.56" LED, with 10 annunciators
Keys	20 push buttons
Power Supply	(1) 12VDC 500mA output, with positive center, AC adapter
	(2) 6V4AH rechargeable lead-acid battery
Around Average	
working current	120mA, when LED's brightness is set to 1
	200mA, when LED's brightness is set to 2(default)
	300mA, when LED's brightness is set to 3
Note: The LED life is shortened when set to level	
Conversion factors used for Kg and Lb	1Lb=0.45359237kg or 1Kg=2.20462262Lb



After the rechargeable battery is fully charged for about 12 hours, the scale can work continuously for approximately 20 hours.

When the voltage drops below 5.7V, the Lo.Bat will be shown. When the voltage drops below 5.5V, the scale beeper will sound and work for approximately two minutes before powering off.

When the scale is powered by the AC adapter, the AC annunciator will turn on. When the battery is charging, the CHG annunciator lamp will be on.



Brecknell

1000 Armstrong Dr., Fairmont, MN 56031
Toll free: 800-637-0529, Tel: 507-238-8702
Fax: 507-238-8271
Email: sales@brecknellscales.com
www.brecknellscales.com

Brecknell

Foundry Lane
Smethwick, West Midlands B66 2LP
Tel: +44 (0) 845 246 6717
Fax: +44 (0) 845 246 6718
Email: sales@brecknellscales.co.uk
www.brecknellscales.co.uk