

ABK/AFK SERIES USER MANUAL

Adam Equipment strives to be more environmentally focused and uses recycled materials and environmentally friendly packaging where possible. As part of this initiative we have developed a short manual that uses less paper and ink to describe the main functions of your new Adam product. A complete version is available at www.adamequipment.com. Thank you for your support of Adam Equipment.

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1.0 INTRODUCTION

- The **ABK/AFK** series provide accurate, fast and versatile general purpose type weighing scales with parts counting, percentage weighing and check-weighing functions.
- The **ABK/AFK** has LED's next to the display to indicate when a weight is below the low limit, in between the limits or above the high limit. These can work in conjunction with an audible alarm for check weighing as well as the display showing LO, OK and HI.
- The **ABK/AFK** is supplied with a RS-232 bi-directional interface and real time clock (RTC).
- The **ABK/AFK** has a sealed keypad with colour coded membrane switches, a large easy to read liquid crystal display (LCD) and a green backlight.
- Included functions are automatic zero tracking, semi-automatic tare and an accumulation facility that allows the weight to be stored and recalled as an accumulated total.

2.0 SPECIFICATIONS

Model #	ABK 8 ABK 16a	ABK 16 ABK 35a	ABK 32 ABK 70a	ABK 60 ABK 130a	ABK 120 ABK 260a
Maximum Capacity	8000g/16lb	16kg/35lb	32kg/70lb	60kg/130lb	120kg/260lb
Readability	0.2g/0.0005lb	0.5g/0.001lb	1g/0.002lb	2g/0.005lb	5g/0.01lb
Resolution	1:40000	1:32000	1:32000	1:30000	1:24000
Repeatability (Std Dev)	0.2g/0.0005lb	0.5g/0.001lb	1g/0.002lb	2g/0.005lb	5g/0.01lb
Linearity \pm	0.4g/0.001lb	1g/0.002lb	2g/0.004lb	4g/0.01lb	10g/0.02lb
Pan size w x d	300 mm x 400mm				
Units of Measure	g / Kg / Lb / Lb:oz / Newtons/Ounces				
Stabilization Time	2-3 Secs				
Operating Temperature	-10°C to +40°C / +32°F to +104°F				
Power Supply	+ 6v 4.5Ah battery 12vDC 800mA External adaptor				
Calibration	External				
Calibration Mass	User Selectable				
Display	Backlit Green display 40mm high digits with capacity tracker				
Draft Shield (w x d x h)	Not Applicable				
Balance Housing	304 Stainless steel housing IP66 rated				
Overall Dimensions (w x d x h)	300mm x 520mm x 610mm/ 11.8in x 20.5in x 24in (approx)				
Net Weight	7.9kg / 17.4Lb (approx)				



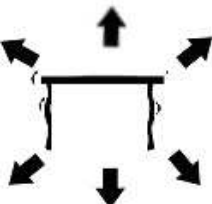
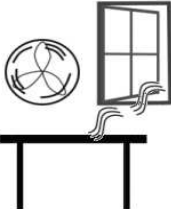
Model #	AFK 75 AFK 165a	AFK 150 AFK 330a	AFK 300 AFK 660a	AFK 600 AFK 1320a
Maximum Capacity	75kg/165lb	150kg/330lb	300kg/660lb	600kg/1320lb
Readability	5g/0.01lb	10g/0.02lb	20g/0.05lb	50g/0.1lb
Resolution	1:15000	1:15000	1:15000	1:12000
Repeatability (Std Dev)	5g/0.01lb	10g/0.02lb	20g/0.05lb	50g/0.1lb
Linearity \pm	10g/0.02lb	20g/0.04lb	40g/0.1lb	100g/0.2lb
Pan size w x d	400mm x 500mm			
Units of Measure	g / Kg / Lb / Lb:oz / Newtons/Ounces			
Stabilization Time	2-3 Secs			
Operating Temperature	-10°C to +40°C / +32°F to +104°F			
Power Supply	+ 6v 4.5Ah battery 12vDC 800mA External adaptor			
Calibration	External			
Calibration Mass	User Selectable			
Display	Backlit Green display 40mm high digits with capacity tracker			
Draft Shield (w x d x h)	Not Applicable			
Balance Housing	304 Stainless steel housing IP66 rated			
Overall Dimensions (w x d x h)	400mmx 620mm x 790mm/ 15.7in x 24.4in x 31 in (approx)			600mm x 940mm x 830mm 23.6in x 37in x 32.7in (approx)
Net Weight	12.8kg/28.2lb (approx)			24.3kg/ 53.6lb (approx)

3.0 INSTALLATION

3.1 UNPACKING

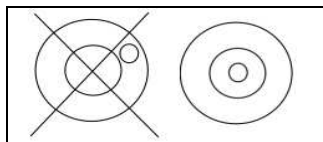
The **ABK/AFK** scales have already been adjusted to work with a platform and have been configured for this application. The platform and indicator have been calibrated as a pair and must be used together.

3.2 LOCATING

	<ul style="list-style-type: none">• The scales should not be placed in a location that will reduce the accuracy.• Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.
	<ul style="list-style-type: none">• Avoid unsuitable tables. The table or floor must be rigid and not vibrate.• Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.
	<ul style="list-style-type: none">• Do not place near vibrating machinery.• Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.
	<ul style="list-style-type: none">• Avoid air movement such as from fans or opening doors. Do not place near open windows or air-conditioning vents.• Keep the scales clean. Do not stack material on the scales when they are not in use.

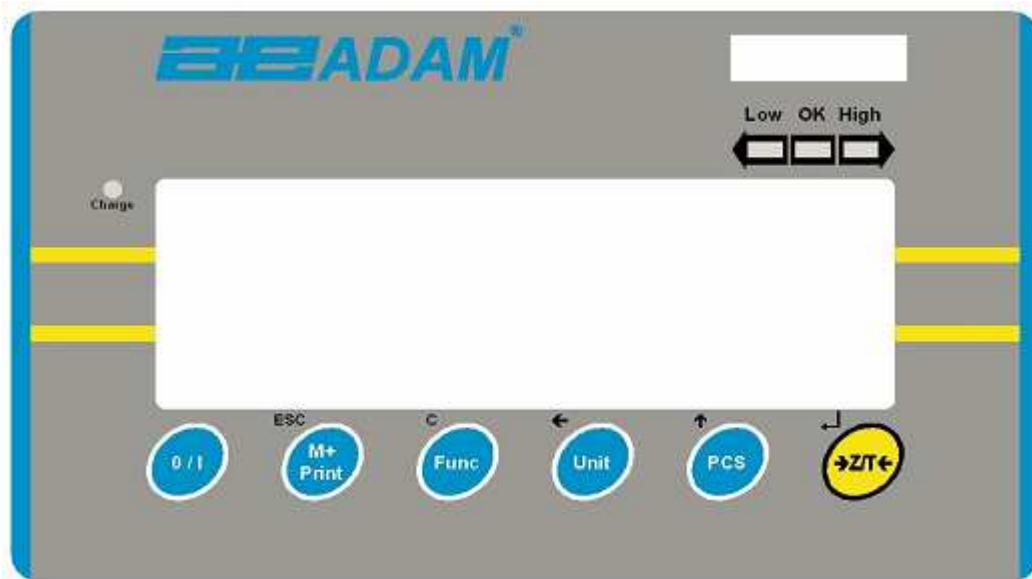
3.3 SETTING UP THE SCALES







- Remove the base and pillar from the packaging and place the pillar into the base fitting. Fix the pillar by using the 2 x screws provided. Remove the circular ring from its bag and place on top of the pillar with the slot at the top and making sure the cable runs through it. Fasten the ring to the pillar using the screw provided.
- Remove the bracket that is fixed to the Indicator with the 2 x locking handles and position it onto the circular ring part. Ensure that the gland around the cable is fitted into the slot in the ring.
- Fix the bracket to the ring part using the 4 x screws provided and then re fit the Indicator to the bracket.
- Adjust the viewing angle of the Indicator to the ideal position and tighten the 2 x locking handles.
- Plug the cable connector into the socket on the rear of the Indicator marked LOAD CELL and tighten.
- Level the scale by adjusting the five feet on the ABK or the four feet on the AFK. If the scale rocks re-adjust the feet.



- Attach the power to the indicator and press the **[On/Off]** key. The software revision number will be displayed followed by a self-test showing all digits before the zero is displayed along with the unit of weight that was last used.

4.0 KEY DESCRIPTIONS

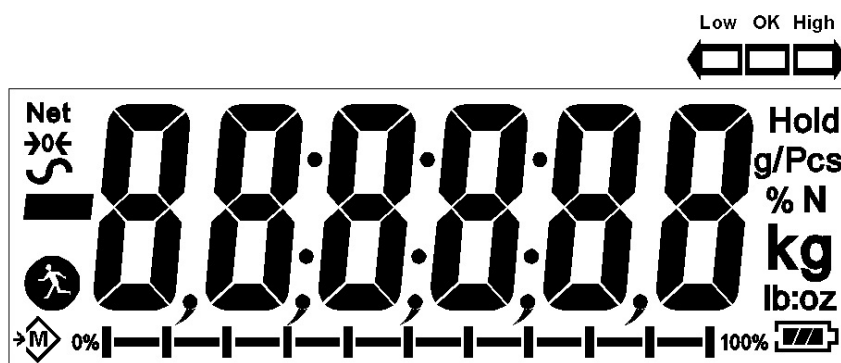


<p>[>Z/T<] </p>	<p>Used to reset the display to zero.</p> <p>Tares the scale. Used to deduct and store the weight currently on the scale if it is not required as part of the final weighing result.</p> <p>A secondary function,  is of an “Enter” key used when setting up a value for the Parameters.</p>
<p>[PCS] </p>	<p>Selects parts counting. Used to set the sample quantities while parts counting.</p> <p>A secondary function  is of incrementing the active digit when setting a value for Parameters.</p>
<p>[Unit] </p>	<p>Selects the weighing unit to be displayed from those which are enabled. See parameter S1 in section 7.4 in the full manual.</p> <p>A secondary function,  is to move the active/flashing digit to the left when setting values for Parameters.</p>

[Func] C	<p>Selects the Function parameters of the scale.</p> <p>A secondary function (C) is to act as a clear key when clearing an accumulated total.</p>
[M+ / Print] ESC	<p>Sends the results to a PC or a Printer using the RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not automatic.</p> <p>A secondary function (ESC) is to return to normal operation when the scale is in a Parameter setting mode.</p>
[O/I]	<p>To switch the Indicator on or off.</p> <p>The ABK/AFK will store the weighing unit and the check weighing values currently in use if power is powered off. These will be re called when the Indicator is next powered on</p>

5.0 DISPLAYS

The LCD display will show a value as well as the unit currently being used. In addition the LED's above the display will show when a weight is below, inside or above the check-weighing limits.

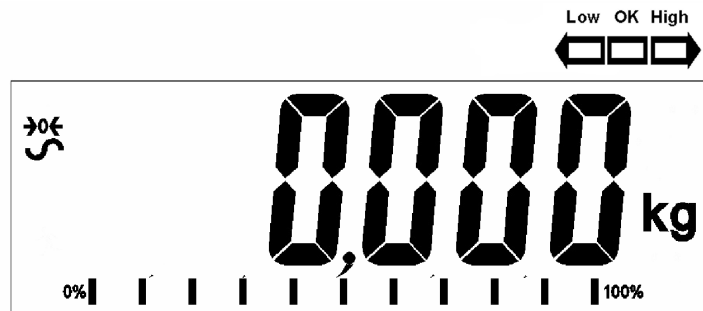


Other symbols will show when a weight has been tared (NET), the scale is at zero and stable, if a value has been stored in memory, or when the animal weighing function has been enabled. A battery symbol will show the state of charge of the internal battery.

6.0 OPERATION

6.1 ZEROING THE DISPLAY

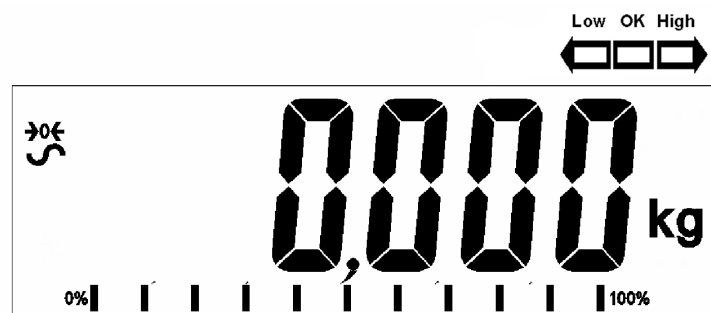
- You can press the **[Z/T]** key at any time to set the display to zero. This will usually be when the platform is empty. When the zero point is obtained the display will show an indicator for zero.



- The scale has an automatic re-zeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the **[Z/T]** key to re zero the scale if small amounts of weight are shown when the platform is empty.

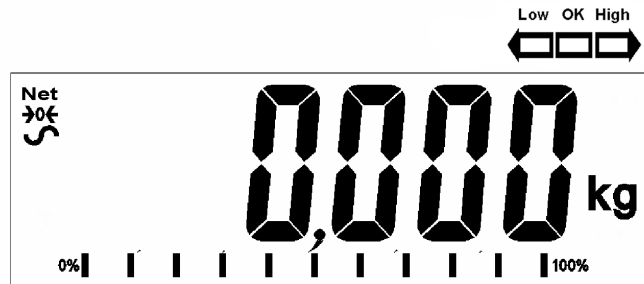
6.2 TARING

- Zero the scale by pressing the **[Z/T]** key if necessary. The **“ZERO”** indicator will be ON.



- Place a container on the platform and a value for its weight will be displayed.

- Press the [Z/T] key to tare the scale. The weight is deducted and stored as the tare value leaving zero on the display. The “NET” indicator will be ON and as a product is added only the net weight of the product will be shown. The scale could be tared a second time if another type of product was to be added to the first one. Again only the weight that is added after taring will be displayed.



- When the container is removed a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight which includes the container and the entire product it contains. The “ZERO” indicator will be on to indicate that the platform is back to the same condition as it was when zero was last set.
- To delete a Tare value, press [Z/T] when the pan is empty.

6.3 WEIGHING A SAMPLE

To determine the weight of a sample, first tare the empty container if it is to be used and then place the sample in the container. The display will show the net weight of the sample and the unit of weight currently in use.



6.4 PARTS COUNTING

If parts counting is enabled, See section 7.4 in the full manual, it is possible to count parts using a sample of the parts to determine an average piece weight.

- If using an empty container, place the container on the top pan and press **[Z/T]** to zero the display. Press the **[PCS]** key to enter parts counting mode.
- The scale will show "**P 10**". Change the sample size to the desired quantity by pressing the **[Pcs/↑]** key. It will cycle through the options: 10, 20, 50, 100, 200 and back to 10.
- Place the nominated sample size into the container and press **[Z/T]**. The sample number should match the sample amount options available for parts counting, i.e., 10, 20, 50, 100 or 200 pieces.
- The display will now show the amount of parts in the container, and as more parts are added the display will increase to show the number of parts in the container at that time. (Pcs).

Pressing the **[Unit/←]** key will display the net weight (pcs and kg), pressing it a second time will display the unit weight (g/pcs), and the third time will display the count again (pcs).

- Press the **[Pcs/↑]** key to return to normal weighing. Press the **[Pcs/↑]** key again to start counting a different sample.

6.5 CHECK-WEIGHING

Check-weighing is a procedure where the LED's come on (and if enabled, an alarm to sound) when the weight on the scale meets values stored in memory. The memory holds the last values for a high and a low limit when the power is turned off. The user can set either one limit or both, see the full version of the user manual for details of the check weighing function.

6.6 ACCUMULATED TOTAL

- The scale can be set to accumulate manually by pressing the **[Print/M+/Esc]** key, or automatically when a weight is removed from the scale. See the Section 7.3 of the full manual for details.

6.7 PERCENTAGE WEIGHING

The scale can be set to perform percentage weighing. See Section 7.2 of the full version of the user manual for complete details.

6.8 ANIMAL (DYNAMIC) WEIGHING

The scale can be set to animal (dynamic) weighing for weighing any items that are unstable or may move. See Section 7.4 of the full version of the user manual for complete details.

7.0 USER PARAMETERS

Pressing the **[Func/C]** key during normal operation allows the user to access the parameters for customizing the scale. The parameters are split into 4 groups-

1. Check weighing parameters,
2. Percentage and Animal Weighing Functions
3. RS-232 parameters
4. Scale parameters

- When **[Func/C]** is pressed the display will first show “**Func 1**” for Check weighing parameters.
- Press either the **[Func/C]** key or the **[Pcs/↑]** to advance through the groups “**Func 1**”, “**Func 2**”, “**Func 3**” and “**Func 4**”. Press **[Z/T]** to enter the desired group of parameters.
- When in one of the sections press **[Print/M+/Esc]** to return to the group “**Func 1**”. If you press **[Print/M+/Esc]** again, the scale will exit the User Parameter section and return to normal weighing.

Complete details of all parameters can be found in of the full version of the user manual.

8.0 BATTERY OPERATION

- The scales can be operated from the battery if desired. The battery life can be up to 70 hours depending on the load cells and how the backlight is used.
- A battery symbol is shown on the display which indicates the current charge of the battery, 3 bars means fully charged. When just the outline of the battery and no bars are visible the battery needs to be re charged.
- To charge the battery, simply plug the adaptor into the mains power, and also into the input connector on the rear of the Indicator marked DC 12V. The scale does not need to be turned on.
- The battery should be charged for 12 hours to reach full capacity.
- Near the display is an LED to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be charged. If the LED is green the battery has a full charge. If it is red the battery is nearly discharged and yellow indicates the battery is being charged.

9.0 RS-232 INTERFACE

The ABK/AFK is supplied with a bi-directional RS-232 interface as standard. The scale when connected to a printer or computer outputs the weight with the selected weighing unit through the RS-232 interface.

Specifications:

RS-232 output of weighing data

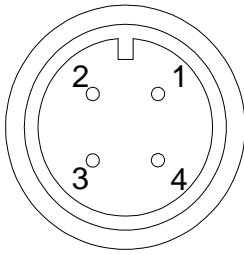
ASCII code

9600 Baud (user selectable)

8 data bits

No Parity

The RS-232 serial interface is a plug as figure 2 shows:



- 1: Pin GND, Signal Ground
- 2: Pin RXD, Received Data
- 3: Pin TXD, Transmitted Data

As viewed from the back of the indicator

The scale can be set to print text in English, French, German or Spanish. See the RS-232 parameters section of the full user manual for details.

The data format and examples of printouts are shown in the full version of the user manual.

9.1 INPUT COMMANDS FORMAT

The scale can be controlled with the following commands. Press the **[Enter]** key of the PC after each command.

T<cr><lf>	Tares the scale to display the net weight. This is the same as pressing [Z/T] .
Z<cr><lf>	Sets the zero point for all subsequent weighing. The display shows zero.
P<cr><lf>	Prints the results to a PC or printer using the RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not set to automatic.

10.0 RELAY INTERFACE

The indicator is supplied with drivers to control external relays. The drivers could be used to control a number of different relays depending upon the users needs. The relay drivers are isolated outputs requiring the use of an external power supply and the relay option kit.

See of the full version of the user manual for complete details.

11.0 CALIBRATION

The scale can be calibrated using the following procedure. To enter this procedure it is necessary to use Func 4 which is accessible using the **[Func/C]** key as described in section 7.4 in the full manual, or by using the passcode access as described in section 12.0.

The scales calibrate using either metric or pound weights depending on the weighing unit being used before calibration. The display will show either "kg" or "lb" to identify the weights expected.

PROCEDURE

- Enter the calibration section using Func 4, C8 CAL or using the passcode as described in section 12.0.
- The display will show "**unLoAd**".
- Remove any weight from platform and when the stable symbol is on press **[Z/T]**.
- The display will show "**Ld**" then "**0000XX**" which shows the last calibration weight used. Place this calibration weight on the scale and press the **[Z/T]** key. If the weight you put on the scale does not match the value displayed, press the **[Func/C]** key to clear the value then use the **[Unit/←]** key and **[Pcs/↑]** key to set the correct value. When it is correct press **[Z/T]**.
- If the calibration is acceptable the scale will run a self-test during which the calibration weight should be removed. If an error message "**FAiL L**" is shown try calibration again as a disturbance may have prevented a successful calibration.

After calibration the scale should be checked to verify the calibration is correct. If necessary repeat the calibration making sure that the scale is stable before accepting any weight.

12.0 SERVICE PARAMETERS

The scales will allow entry to the parameters if the **[Tare]** key is pressed during the power on cycle. The passcodes work as explained earlier. In this case the display will show the passcode request screen, “**P - - - -** “. To continue enter a passcode as described below.

Entering passcode 0000 will allow calibration as shown in section 11.

Entering 1000 will allow access to a limited set of parameters described in section 12.1.

12.1 USING THE SERVICE PARAMETERS

Press the **[Z/T]** key during the display countdown when turning on,

When “**Pn**“ is displayed, enter the number 1000 using the **[Unit/←]** and **[Pcs/↑]** keys and then press **[Z/T]**.

The display will show the first parameter called “**F4 Int**”.

To select another parameter press the **[Pcs/↑]** key which will advance through the parameters available. Full details are in the full version of the user manual.

13.0 ERROR CODES

ERROR CODES	DESCRIPTION	SUGGESTIONS
--oL--	Over-range	Remove weight from the scale. If the problem persists contact your dealer or Adam Equipment for assistance.
Err 1	Time Setting Error	Enter time using correct format and reasonable values. Format: hh:mm:ss
Err 2	Date Setting Error	Enter date using correct format and reasonable values. Format: yy:mm:dd
Err 4	Zero Setting Error	The scale was outside the normal zero setting range either when it was turned on, or when the [Zero] key was pressed. Remove weight from the scale and try re-zeroing again. Use the [Z/T] key to set the display to zero value. If the problem persists contact your dealer or Adam Equipment for assistance.
Err 6	A/D out of range	The values from the A/D converter are outside the normal range. Remove the weight from the scale if overloaded. Make sure the pan is fitted correctly. Indicates the load cell or the electronics may be faulty. If the problem persists contact your dealer or Adam Equipment for assistance.
Err 9	Check weigh limits error	Shown if the low limit is set higher than the current high limit. Reset High limit or change the low limit.
FAIL	Calibration error.	Improper calibration (should be within $\pm 10\%$ of the factory calibration). The old calibration data will be retained until the calibration process is complete. If the problem persists contact your dealer or Adam Equipment for assistance.

WARRANTY INFORMATION

Adam Equipment offers Limited Warranty (Parts and Labour) for the components failed due to defects in materials or workmanship. Warranty starts from the date of delivery.

During the warranty period, should any repairs be necessary, the purchaser must inform its supplier or Adam Equipment Company. The company or its authorised Technician reserves the right to repair or replace the components at any of its workshops depending on the severity of the problems. However, any freight involved in sending the faulty units or parts to the service centre should be borne by the purchaser.

The warranty will cease to operate if the equipment is not returned in the original packaging and with correct documentation for a claim to be processed. All claims are at the sole discretion of Adam Equipment.

This warranty does not cover equipment where defects or poor performance is due to misuse, accidental damage, exposure to radioactive or corrosive materials, negligence, faulty installation, unauthorised modifications or attempted repair or failure to observe the requirements and recommendations as given in this User Manual. Additionally rechargeable batteries (where supplied) are not covered under warranty.

Repairs carried out under the warranty does not extend the warranty period. Components removed during the warranty repairs become the company property.

The statutory right of the purchaser is not affected by this warranty. The terms of this warranty is governed by the UK law. For complete details on Warranty Information, see the terms and conditions of sale available on our web-site.



Manufacturer's Declaration of Conformity

This product has been manufactured in accordance with the harmonised European standards, following the provisions of the below stated directives:

Electro Magnetic Compatibility Directive 2004/108/EC

Low Voltage Directive 2006/95/EC

Adam Equipment Co. Ltd.

Bond Avenue, Denbigh East

Milton Keynes, MK1 1SW

United Kingdom

FCC COMPLIANCE

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. The 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.

Shielded interconnect cables must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device.

Changes or modifications not expressly approved by Adam Equipment could void the user's authority to operate the equipment.

WEEE COMPLIANCE



**Sealed Lead Acid
Battery
Must be recycled
Properly**

Any Electrical or Electronic Equipment (EEE) component or assembly of parts intended to be incorporated into EEE devices as defined by European Directive 2002/95/EEC must be recycled or disposed using techniques that do not introduce hazardous substances harmful to our health or the environment as listed in Directive 2002/95/EC or amending legislation. Battery disposal in Landfill Sites is more regulated since July 2002 by regulation 9 of the Landfill (England and Wales) Regulations 2002 and Hazardous Waste Regulations 2005. Battery recycling has become topical and the Waste Electrical and Electronic Equipment (WEEE) Regulations are set to impose targets for recycling.

ADAM EQUIPMENT is an ISO 9001:2008 certified global company with more than 35 years experience in the production and sale of electronic weighing equipment.

Adam products are predominantly designed for the Laboratory, Educational, Health and Fitness, retail and Industrial Segments. The product range can be described as follows:

- Analytical and Precision Balances
- Compact and Portable Balances
- High Capacity Balances
- Moisture analysers / balances
- Mechanical Scales
- Counting Scales
- Digital Weighing/Check-weighing Scales
- High performance Platform Scales
- Crane scales
- Health and Fitness Scales
- Retail Scales for Price computing

For a complete listing of all Adam products visit our website at www.adamequipment.com

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All information contained within this publication is to the best of our knowledge timely, complete and accurate when issued. However, we are not responsible for misinterpretations which may result from the reading of this material.

The latest version of this publication can be found on our Website.

www.adamequipment.com