ADAM

Adam Equipment

CN Series

P.N. 7.00.6.6.0199, Software rev. T 8, Revision A1- July 2014

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1.0 INTRODUCTION

The CN Series offers use as an Indicator (CN) or as a platform scale (CNP). The Indicator is programmable by the user for up to 1: 30000 divisions and the platform scales are available in three model capacities. As a platform they have a large base and both are designed for industrial applications.

The main features where applicable are:

- Available in a range of capacities
- Single load-cell construction
- Overload protection
- Adjustable levelling feet
- Mild steel construction offering rugged structure
- Large stainless steel pan
- Supplied complete with CN Indicator
- Simple operation
- Zero Tracking
- Selectable LED brightness
- Check-weighing with low and high limits
- Hold function
- Accumulation function
- Counting function
- Operation from internal rechargeable battery or mains power
- Single weighing unit kg

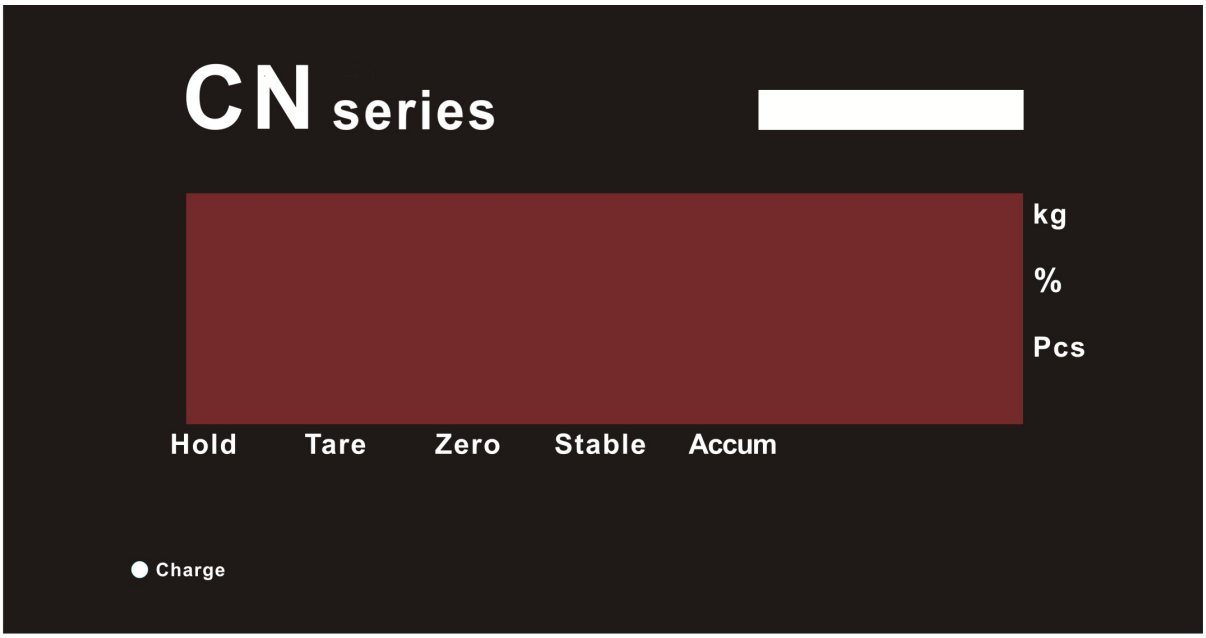
2.0 SPECIFICATIONS

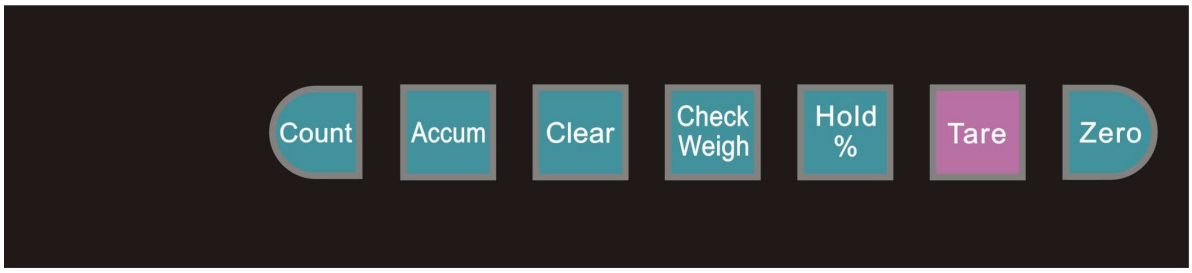
Model	**CNP 60**	**CNP 150**	**CNP 300**	**CN Indicator**
Maximum Capacity	60 kg	150 kg	300 kg	75000 kg
Readability	5 g	10 g	20 g	30,000d max
Repeatability (Std. Dev.)	5 g	10 g	20 g	1d
Linearity (±)	10 g	20 g	40 g	2d
Tare Range	Full range			
Units of Measure	KG only			
Stabilisation Time	2-3 seconds			
Operating Environment	Temperature: 0°C to 40°C, Humidity: 10%～80% Protection grade: IPX0			
Power supply	Re-chargeable battery located inside the indicator Or Mains power **AC 220-240V 50/60Hz 100mA**			
Display	Large 20mm LED segments			
Calibration	Automatic calibration			
Scale Housings	Indicator: ABS Plastic Platform: Mild steel base and stainless steel pan			Indicator: ABS Plastic
Pan Size (w x d x h)	400mm x 500mm x 55mm			N/A
Overall dimensions (w x d x h)	400mm x 635mm x 922mm			247mm x 160mm x 160mm
Net Weight	10.8 kg			1.6kg
Input signal range	-10mV ~ 15mV			
Input Sensitivity	1 V/e			
Load cell excitation	5Vdc / 150ma			
Max No. of load cells	4 at 350ohms			

LOAD CELL CONNECTION

Pin 1 : Excitation plus
Pin 2 : Sense plus
Pin 3 : Shield
Pin 4 : Excitation minus
Pin 5 : Sense minus
Pin 6 : Signal plus
Pin 7 : Signal minus

2.1 DISPLAY AND KEYPAD





When an LED is lit adjacent to text on the display area it has the following meaning:

Hold	The display will stop and remain on a stable value
Tare	A weight has been tared, the display is showing the net weight
Zero	The scale is set at zero
Stable	The displayed value is stable
Accum	An accumulation of weight has been entered into the memory
Kg	The display is weighing in kg
%	The scale is in % mode
Pcs	The scale is in Parts counting mode
Charge	The battery is being charged from the mains supply

The keys perform the following functions:

[Count]	This key is used to enter and exit the counting mode and to enter the sample quantity selected
[Accum]	This key is used to accumulate a number of readings up to a maximum of 20
[Clear]	This key is used to clear the accumulated total
[Check Weigh]	This key is used to set LOW and HIGH limits for the check weighing mode
[Hold %]	This key is used in the hold setting function and to enter the % weighing mode
[Tare]	This key is used to zero the display deducting the weight of a container when placed on the top pan before weighing
[Zero]	This key is used to zero the display before weighing

2.2 POWER SUPPLY

- Power can be supplied using an internal re-chargeable battery provided within the indicator, or from mains power.

- If the battery is low on charge the display will show [+ -]. Plug the mains cable into the Indicator to recharge the battery, the charge Indicator should show red at first and then green when the battery is fully charged.

- With the internal re-chargeable acid battery, the battery life is approximately 60 hours.

2.3 SETTING UP THE SCALE AS A PLATFORM

- Unpack the scale by removing it from the box.
- Thread the cable from the base through the pillar and place the pillar in the upright position into the rear socket of the platform base and fasten the screw.
- Pull the cable through the Indicator bracket and fit the bracket to the pillar.
- Slide the indicator onto the bracket and connect the cable connector to the interface on the rear of the Indicator.
- Adjust the bracket to the correct position and fasten the fixed screw handle on its side to lock it in place.
- Position the scale on a firm and steady surface and switch on.

As an Indicator simply unpack from the box, connect the load cell cable from the base you are using to the 9 pin connector on the rear of the Indicator, plug in the mains cable and power up.

Position the Indicator in a safe position avoiding possible damage to the load cell cable.

NOTE:

External metal connectors are not linked to earth.

Before operating parts marked with a  symbol please read the instruction manual and operate with caution to avoid hazard.

The internal rechargeable battery can be changed, but please first ask for technical support from your dealer or the manufacturer. Replacement batteries should be type BT-6M4.0AC (6V4AH) or direct equivalent.
PLEASE DISPOSE OF AND RECYCLE USED BATTERIES CAREFULLY AND ACCORDING TO LOCAL LAWS AND REGULATIONS

Fitted fuse-link specification is type F1AL250V.

3.0 OPERATIONS

3.1 POWER

- Plug the mains cable into your power supply and the connector into the socket on the Indicator. The indicator will charge the internal battery whenever it is connected to the 220 VAC power supply.

- Push the ON/OFF switch at the back right hand side of the indicator to the ON position to power on or off.

NOTE: When you turn off the scale by pressing the ON/OFF switch, the power is not completely isolated. You should disconnect the power supply if the scale is not going to be used for an extended period.

3.2 ZERO FUNCTION

- For accurate weighing, make sure the top pan is empty and press the **[Zero]** key.

- The Zero LED indicator will be on.

3.3 TARE FUNCTION

- When the scale has an empty container on it press the **[Tare]** key.

- The Tare LED indicator will be on.

- The display will show zero. If it does not show zero, press the **[Zero]** key.

- To clear the tare, remove the container and press the **[Tare]** key again. If the display does not show zero press the **[Zero]** key which will switch the Tare LED indicator off, and return the scale to zero.

3.4 WEIGHING

- Place a mass on the platform and the weight will be displayed in kg.

- Wait until the stable indicator is displayed for accurate weighing.

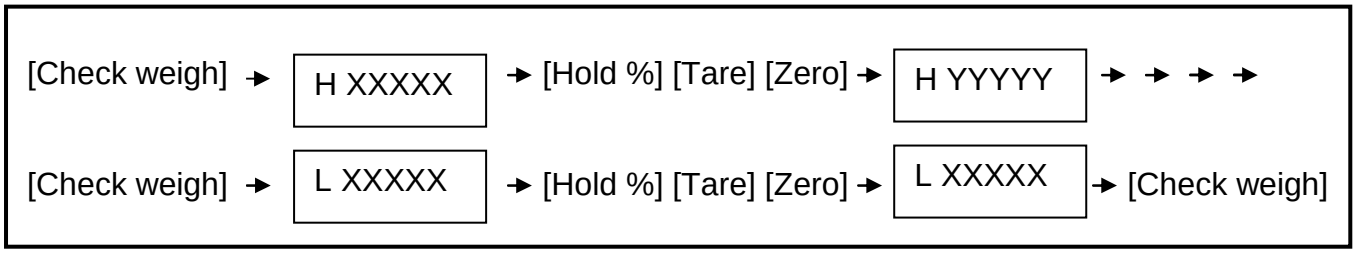
3.5 CHECK WEIGHING

Check-weighing is a procedure to sound an alarm when the weight of the sample on the scale meets or exceeds the pre-set Low and High values stored in the memory,

- Press the **[Check weigh]** key. The display will show “H XXXXX” with the first digit flashing. To set your HIGH limit, use the **[Hold]** key to advance the flashing digit, the **[Tare]** key to increase the value of the flashing digit, and the **[Zero]** key to decrease the value of the flashing digit. Press **[Check weigh]** again to confirm the value, “H YYYYY”

- The display will now show “L XXXXX” with the first digit flashing. To set your LOW limit, use the **[Hold]** key to advance the flashing digit, the **[Tare]** key to increase the value of the flashing digit, and the **[Zero]** key to decrease the value of the flashing digit. Press **[Check weigh]** again to confirm the value, “L YYYYY” and the display will return to normal weighing mode.

Once the check weighing limits are set a beeper will sound with respect to these limits depending on how the beeper control has been set up, please refer to the USER PARAMETER section 4.2 for more details.



3.6 COUNTING

The counting function allows you to count a number of parts following an initial sample that has been placed on the top pan, and the number of this sample has been entered via the keypad.

- If counting into a container firstly place the empty container onto the top pan and press the **[TARE]** key, make sure the display shows Zero.

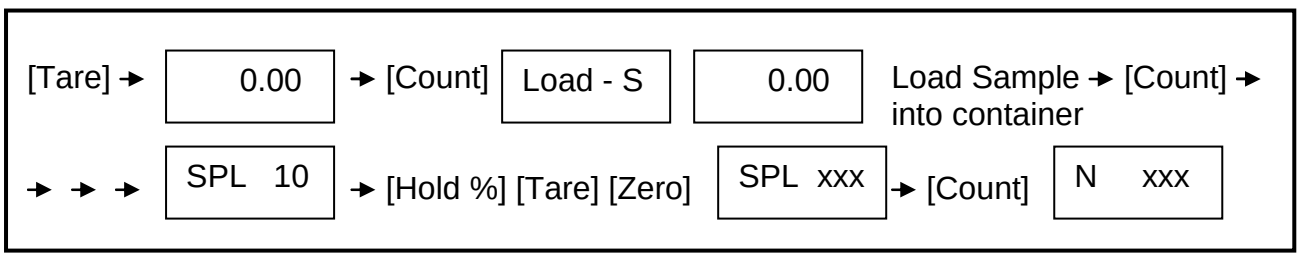
- Press the **[Count]** key and the display will show "Load – S" and then show Zero weight on the display, it the display does not show Zero press the **[TARE]** key again. The Count LED will also be lit at this time showing that you are in counting mode.

- Place your initial sample of parts into the container and press the **[Count]** key again, the display will show SPL 10, if 10 is the number of parts you used for your initial sample then press the **[Count]** key again, the display will now show "n 10" which represents the number of parts in the container, add more parts to the container to view your final count.

- If you wish to use a larger initial sample than 10 you can enter your chosen number by using the **[Hold]**, **[Tare]**, and **[Zero]** keys.

  [Hold] will increment the hundreds figure
  [Tare] will increment the tens figure
  [Zero] will increment the single figure

  When you have selected your chosen sample number press **[Count]**, make sure the display shows your selected sample number and proceed to add parts to the container to view your final count.



3.7 ACCUMULATION

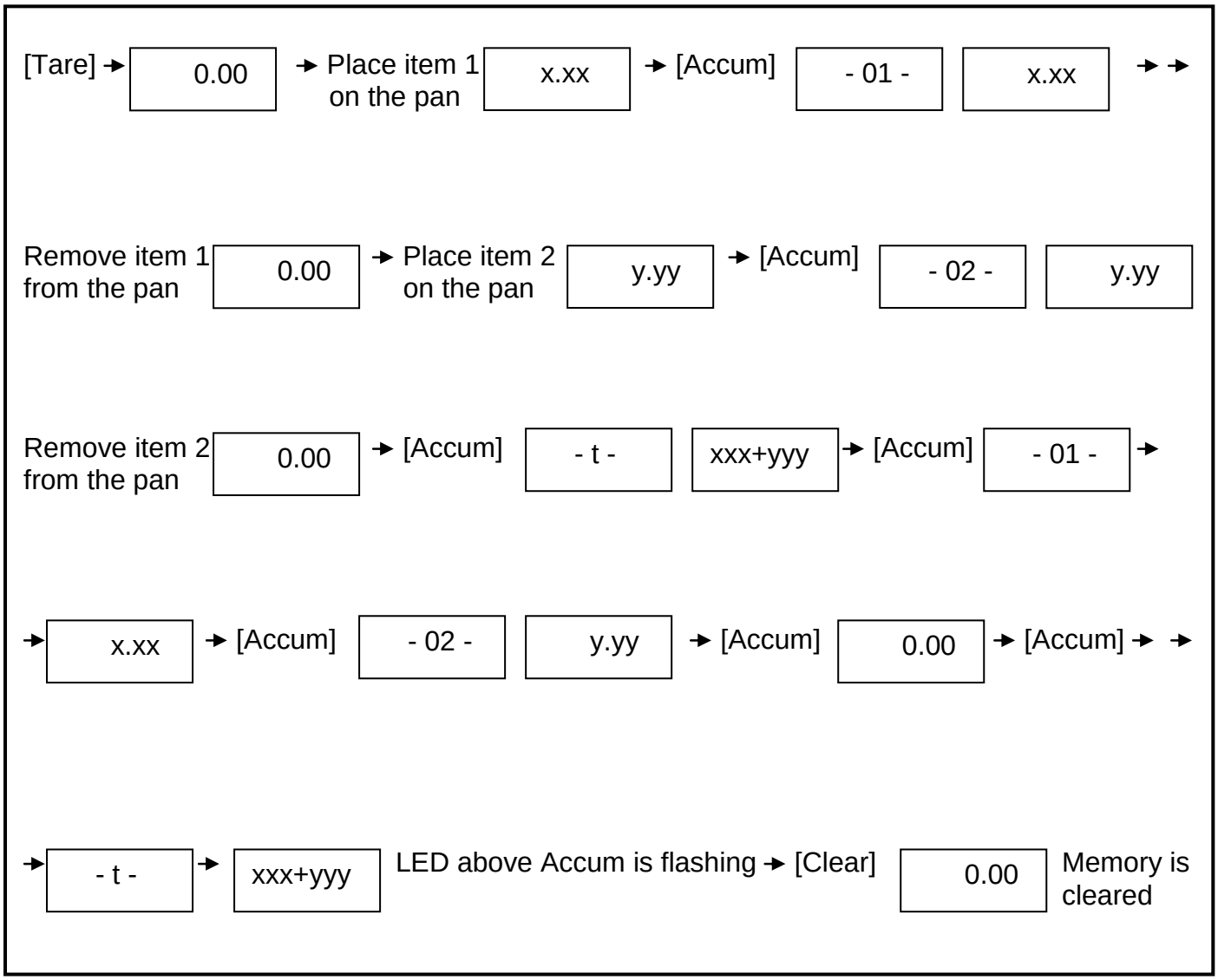
The accumulation function allows you to memorise a number of individual readings to give you an accumulated total weight, this total weight can be recalled along with each individual weight.

- Make sure the reading is at Zero and place your first item on the top pan, x.xx, press the **[Accum]** key and the display will show the number of the accumulation (01) and return to normal weighing, x.xx, the Accum LED will be lit to show that you have a reading in the memory.

- Remove the first item and ensure the reading goes back to Zero, place your second item on the top pan, y.yy and press the **[Accum]** key again, the display will show the next number of the accumulation (02) and return to normal weighing, y.yy, continue in the same way until you have finished your totalisation and the scale has returned to Zero.

- To recall your accumulated readings press the **[Accum]** key, the display will show “t” being total and then the total weight of the combined readings you accumulated. To recall an individual reading press the **[Accum]** key again and the display will show the number of the accumulation (01) and the weight associated with that reading, x.xx, continue pressing **[Accum]** until the display has shown all of the individual readings and then returned to Zero.

- To clear the memory press the **[Accum]** key again and when the Accum LED is flashing press the **[Clear]** key.



3.8 HOLD

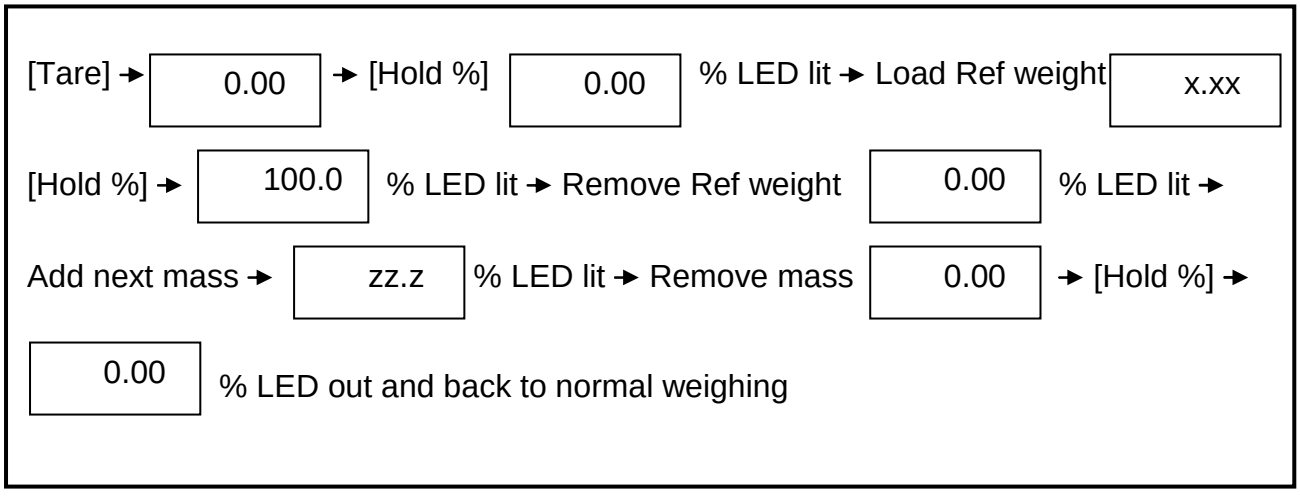
The Hold feature allows you to hold the stable reading on the display so that you can view it at any time even if the weight is removed, the stable weight reading will be fixed and remain on the display until the next weighing is performed or the weight is removed from the top pan and the display returns to zero.

A number of different settings for the Hold feature can be used which will effect when and how the Hold will work, these are explained in the USER PARAMETER section 4.3.

3.9 % WEIGHING

The % weighing mode allows you to set a 100% reference weight, once set this allows the user to view as a percentage of the reference weight any further weighings performed.

- Make sure the top pan is empty and press the **[Hold %]** key.
- Load - P will be displayed and the % LED will be lit.
- Place your reference weight onto the top pan and press the **[Hold % key]** again
- 100.0% will be displayed to confirm that the weight you placed on the top pan has registered as your 100% reference weight
- Remove the weight from the pan and the display will show zero and the % weighing indication on the left side of the display
- The display will now show a percentage in relation to the reference weight each time you add a mass
- Press the **[Hold %]** key to return to normal weighing



4.0 USER PARAMETERS

The following parameters can be set by the user. Press and hold the **[Tare]** key then switch on the indicator. Release the **[Tare]** key and the first parameter "SP" will be displayed along with the previous setting.

	Parameters	Description
4.1	SP	Sets the display sleep time
4.2	L1	Sets the check weigh function
4.3	Hd	Sets the Hold feature
4.4	LEd	Sets the LED brightness

4.1 SP = DISPLAY SLEEP TIME SETTING

- The scale can be set to turn off the main display when no movement of weight or pressing of a button is sensed, settings available are OFF and 5 to 90 in increments of 5 seconds, when a weight is added or removed or a button is pressed the display will be re activated.

- When "SP" is displayed press the **[Zero]** key to change the setting, default is OFF.

- Press the **[Check weigh]** key to store the setting and move to Hd, or press the **[Hold %]** key to enter the Check weigh function setting.

4.2 L1 = CHECK WEIGHING MODE

Five modes are available for check weighing

- **OFF**

- No beep will sound when in weighing mode

- **ON 1:**

- When the weight is below the LOW limit setting a slow beep sounds.

- When the weight is between the LOW and HIGH limit settings there is no beep.

- When the weight is above the HIGH limit setting a fast beep sounds.

- **ON 2:**

- When the weight is below the LOW limit setting or above the HIGH limit setting there is no beep.

- When the weight is between the LOW and HIGH limit settings a fast beep sounds.

- **ON 3:**

- As ON : 1 above but will also work for negative weighing

- **ON 4:**

- As ON : 2 above but will also work for negative weighing

To set the required mode of check weigh press the **[Tare]** key to select, and then press the **[Check weigh]** key to confirm and move to Hd setting.

4.3 Hd = HOLD FEATURE SETTING

- When "Hd" is displayed press the **[Zero]** key to change the setting between ON and OFF.

- If setting to OFF, press the **[Check weigh]** key to store the setting and move onto section 4.4.

- If setting ON, press the **[HOLD %]** key to enter the first of the Hold feature settings (Ht).

- Press the **[Zero]** key to select the number of divisions to be exceeded at which the Hold will be released when the next weight is added following the initial Hold from your first weighing.

- Settings available are “t z” and 10d -70d at 10d increments.

- Press the **[Hold %]** key to store the setting and move on to the next Hold feature (Hr) setting, this setting controls when the Hold will be activated depending on how stable the mass is, a lower setting means the Hold feature will work over a smaller range of stable readings, meaning the Hold will fix the display very quickly following when the mass is added to the pan.

- Press the **[Zero]** key to select a setting between 0 and 6, default is OFF.

- Press the **[Check weigh]** key to store the setting and move to the next parameter.

4.4 LEd = LED BRIGHTNESS CONTROL

- When “LEd” is displayed press the **[Zero]** key to change the setting.

- Settings available are 1,2 and 3.

- A setting of 1 will give you the dimmest display and a setting of 3 will be the brightest, default is 3.

- Press the **[Check weigh]** key to store the setting.

- Turn the scale OFF and then ON for the revised settings to become active.

5.0 TECHNICAL PARAMETERS AND CALIBRATION

To enter this section, press the **[Hold %]** and the **[Tare]** key then switch on the Indicator. Release the keys and the display will show the first parameter “FIL” and the previous setting.

	Parameters	Description
5.1	FIL	Sets the display update rate
5.2	ZE	Sets the auto zero range
5.3	Lid	Sets the Linearity setting range
5.4	Lin	Sets the Linearity correction value
5.5	C	Sets the capacity of the scale
5.6	d	Sets the division of the scale
5.7	E	Selects the calibration mass value for calibration
5.8	XXXXX	ADC at zero
5.9	Load	Add the calibration mass to the pan
	XXX	Weight displayed in normal weighing mode

5.1 FIL = FILTER CONTROL

- Filter controls the display update range, the lower the setting the faster the display will update when a weight is added to the scale
- When FIL is displayed, press the **[Zero]** key to change the setting.
- Settings available are from 1-6, default is 4
- Press the **[Check weigh]** key to store the setting and move to the next parameter.

5.2 ZE = AUTO ZERO RANGE

- ZE controls the return to zero following a weighing. This allows for small amounts being displayed following a weighing that may be caused by changes in temperature or other external factors to be removed automatically without having to press the [Zero] key.

- When ZE is displayed, press the **[Zero]** key to change the setting.

- Settings available are from 1-7, default is 2.

- Press the **[Check weigh]** key to store the setting and move to the next parameter.

5.3 Lid = LINEARITY SETTING RANGE

- LID sets the range for which the LIN correction setting in 5.4 has most effect, a setting of 1 corrects readings around the first 20% of the weighing range, a setting of 3 corrects readings around 60% of the weighing range and a setting of 5 corrects the reading around full load.

- When Lid is displayed, press the **[Zero]** key to change the setting.

- Settings available are from 1-5, default is 0.

- Press the **[Check weigh]** key to store the setting and move to the next parameter.

5.4 Lin = LINEARITY CORRECTION VALUE

- Lin corrects the Linearity using the minus setting when the full load reading is too high, or corrects the Linearity using the positive setting when the full load reading is too low. The value of 1 does not stand for one “d” as it is the internal AD value that will be corrected. Set an appropriate value to make sure the scale has acceptable Linearity

- When Lin is displayed, press the **[Zero]** key to change the setting.

- Settings available are from -8 to +8, default is 0.

- Press the **[Check weigh]** key to store the setting and move to the next parameter.

5.5 C = CAPACITY OF SCALE

- This sets the capacity of the scale, for CNP models the capacity is already set and should remain as displayed. When being programmed as a CN Indicator the capacity can be set as below.

- The **[Zero]** and **[Tare]** keys step through the available model capacities

- The **[Hold %]** key moves the decimal point position

- Use these keys to set the required capacity and decimal point position

- Press the **[Check weigh]** key to store the settings and move to the next parameter.

5.6 d = DIVISION (READABILITY) OF THE SCALE

- This sets the division or readability of the scale, for CNP models the division is already set and should remain as displayed. When being programmed as a CN Indicator the division can be set as below
- Press the **[Hold %]** key to select the required division
- Press the **[Check weigh]** key to store the settings and move to the next parameter

5.7 E = CALIBRATION WEIGHT VALUE

- The **[Hold %]** key moves the flashing digit
- The **[Zero]** and **[Tare]** keys increment the flashing digit
- Use these keys to set your calibration mass value
- Press the **[Check weigh]** key to store the setting and move to the next parameter

5.8 XXXXX = ADC COUNT AT ZERO

- This is an internal digital number value to show the zero ADC, the number should be reasonably stable
- Press the **[Check weigh]** key to set zero and move to the next parameter

5.9 -Load- = ADD THE CALIBRATION MASS TO THE PAN

- Place the selected calibration mass value onto the top pan
- Press the **[Check weigh]** key to calibrate the scale
- The scale will then return to normal weighing mode and display the calibration mass used in kg

6.0 TROUBLE-SHOOTING GUIDE

PROBLEMS	POSSIBLE CAUSES
Display is blank	On/Off switch is off Battery not charged
No countdown of display on power up	Battery not charged Power supply not plugged in or incorrect type Power supply faulty
Error message displayed -------	Overload Load cell damaged
Display is unstable	Drafts or air currents Load cell connections not secure Obstruction under weighing platform Vibrations through the floor Temperature changed dramatically Power supply faulty
Weight value incorrect	Calibration error, recalibrate again Unit calibrated with inaccurate weight Obstruction around platform
Cannot use Full Capacity	Overload stops hitting platform support or hitting the bottom of the load cell Parameters set incorrectly Load cell Damaged
Not Linear	Overload stops hitting too soon Load cell damaged
Off Center Loading error	Overload stops not set correctly Load cell damaged
Battery will not charge	Incorrect power adaptor being used Charging circuit failure Battery failure Mains voltage not present, or too low

WARRANTY STATEMENT

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.

This product has been manufactured and certified to meet the following standard:
SANS 61010-1:2011, Safety requirements for measurement, control and laboratory use equipment – Part 1: General requirements.

DO NOT DISPOSE OF IN GENERAL WASTE

Equipment and battery disposal must be performed according to local laws and restrictions set to impose targets for safety and recycling and to prevent hazardous and harmful substances from being released.

ADAM EQUIPMENT is an ISO 9001:2008 certified global company with more than 40 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

Adam Equipment reserves the right to make changes to the technology, features, specifications and design of the equipment without notice.