# COTSWOLD MECHANICAL LTD

# CMW CONTROLS

## USER MANUAL

# COTSWOLD MECHANICAL LTD

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## 1.0  INTRODUCTION

This manual has been compiled to assist the machinery manufacturer in the basic operation of the CMW Control System .

The controller utilises a backlit high contrast LCD display and operator keypad to enable the display and modification of all areas of the linear weigher operation.

The weighing characteristics of up to 100 different products can be pre-set into the product library and then products may be called up for use by either their name or optional product code.

The unit is easily cleaned, being housed with a stainless steel enclosure, sealed to the IP65 standard.

The controller can be configured to control one or two weighers and up to four vibrators. Depending upon the configuration of your machine, not all options shown in this manual may be accessible or appear on the screen layouts.

## 2.0  OPERATION

In this part you will be guided through the operation of the basic functions of the controller. This manual assumes that the machine is correctly installed and powered on. Below is a summary of the following sections in this part.

Section 0 is a guide to the user interface.

Section 0 shows the security features for protecting data entry.

Section 0 shows the layout of the normal operating home display screen.

Section 0 explains the settled weights screen.

Section 0 explains the statistics screens.

Section 0 shows the main menu screen.

Section 0 is a detailed guide to the product library.

Section 0 explains how to statically calibrate the weigher.

Section 0 explains how to manually zero the weigher.

Section 0 explains how to empty the weigher.

Section 0 explains the diagnostic fault reporting.

## 2.1 USER INTERFACE

The user interface is designed to allow simple set-up of the linear weigher and display clear weighing and statistical information during operation.

Numerical data is entered via the 0-9 and '.' keys with the data being accepted with the ENTER key. These same keys can also be use to enter alphanumeric characters in a similar fashion to that of a mobile phone.

The four ARROW keys are used to select specific screen entries and to move around the screens quickly.
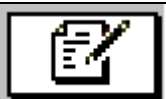
The four keys at the bottom right hand side of the keypad are used for the machine operation. Each of these keys contains a red LED lamp to indicate when they are active.

Directly below the LCD screen are six keys whose functions depend upon the screen displayed. The bottom of the screen contains a row of display icons that indicate the function of each key. See Button Table for meanings.

# COTSWOLD MECHANICAL LTD
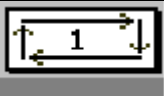
| BUTTON TABLE | |
|---|---|
| | **BUTTON TABLE** |
|  | Go to main menu. |
|  | Go to configuration menu. |
|  | Go to test menu |
|  | Return to home screen. Main operating screen. |
|  | Return to previous screen from home screen. |
|  | Show statistics screens. |
|  | Show batch statistics |
|  | Show shift statistics |
|  | Show histogram to +/- T1 limits. |
|  | Show histogram to _/- T2 limits |
|  | Show settled weights screen. Shows weighing status. |
|  | Go to monitor screen. |

## BUTTON TABLE

| | |
|---|---|
| | Go to previous screen. |
| | Go to next screen. |
| | Select product to run, change product. |
| | Edit current product. |
| | Accept. |
| | Cancel. |
| | Copy item to another location. |
| | Delete selected product. |
| | Change entry font to lower case. |
| | Change entry font to upper case. |
| | Run / Enable |
| | Stop / Disable |

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## BUTTON TABLE

| | |
|---|---|
|  | Start next calibration stage. |
|  | Run To empty. |
|  | Empty. |
|  | Reset data. |
|  | Test output on / off. |
|  | Cycle selected test output. |

## 2.2 SECURITY



Data within the controller is protected from unauthorised access by means of three levels of password :-

1. Supervisor (lowest)

2. Engineer

3. Manufacturer (highest)

When access code is required the screen above will pop up. At this point the user should enter their 4-digit code followed by 'ENTER'.

## 2.3 HOME SCREEN



Last
Disch
arged

Live Weights

Bulk Feed
Fine Feed
Weight Complete
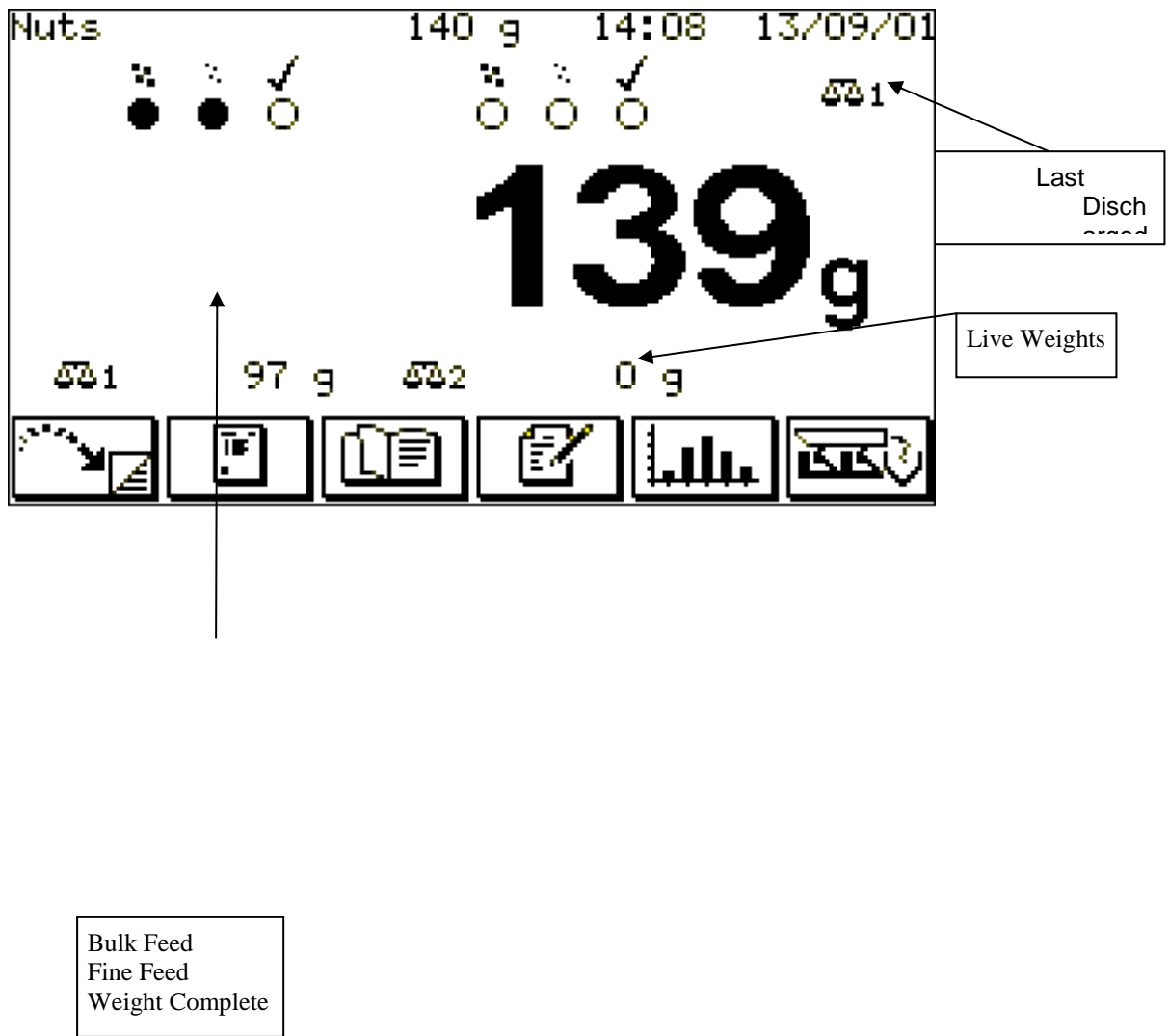
Main operating screen shows status for one or two weighers.

## 2.4 SETTLED WEIGHTS SCREEN
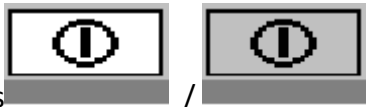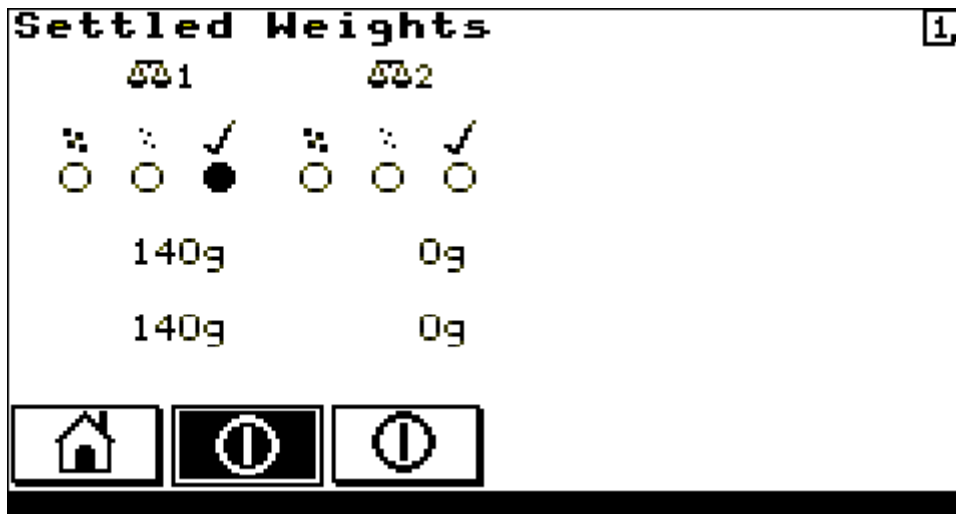


Press  /  to ENABLE / DISABLE the weighing stations.

Shows the live weight against the settled weight for each weigher such that when weighing is complete this will provide an indication of how accurate the weighing settle parameters are.

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## 2.5 STATISTICS SCREENS
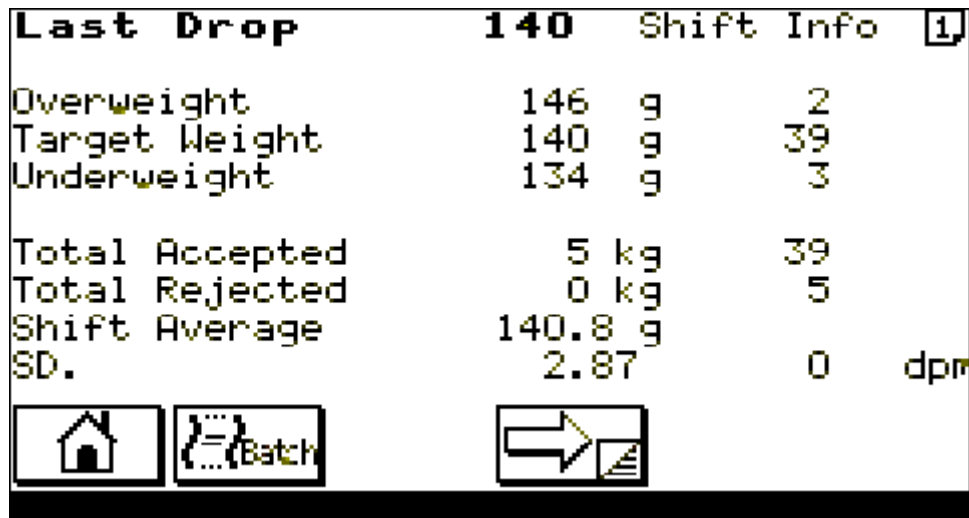


Shows weights, occurrences and standard deviation for batch and shift statistics. Use batch/shift button to move between the two statistics sets. See section **0**

**SHIFT / BATCH CONFIGURATION** to set up batch statistics over time or number of weighings and shift statistics for one to three shifts.
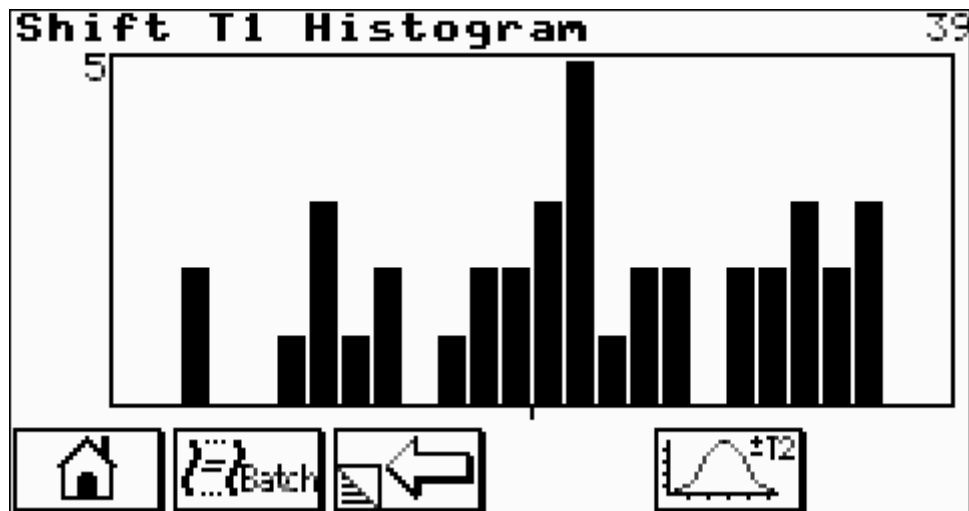


Shows weight histogram for batch or shift. Use batch/shift button to move between the two statistic sets. Use T1/T2 button to select histogram spread displayed.

## 2.6 MAIN MENU
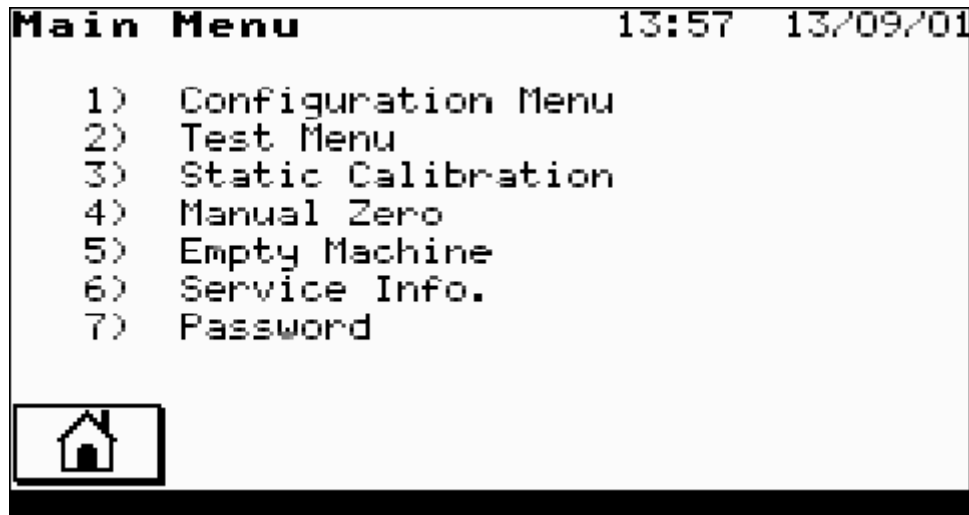


**Main menu allows entry into the main control topics**.

| | |
|---|---|
| **Configuration Menu** | access set up overall machine operation |
| **Test Menu** | access test functions of the machine |
| **Static Calibration** | calibration section |
| **Manual Zero** | manual zero |
| **Empty Machine** | to run the machine until empty |
| **Service Info.** | Service contact details, program monitoring |
| **Password** | enable/disable current password |

Data within the controller is protected from unauthorised access by means of three levels of password.

## 2.7 PRODUCT LIBRARY

```
Select Existing Product

001 KIRSCHEN               25.0 g
002 SALAT                  25.0 g
003 test                   10.0 g
004 CHEESE                 25.0 g
005 KIRSCHEN             1000.0 g
006 Popcorn 30g            30.0 g
007 KIRSCHEN              200.0 g


 [HOME]  [OK✓]            [COPY]  [DELETE]
```

The machine allows the details for up to 100 different products to be held in non-volatile memory.

Use UP / DOWN ARROWS to select current product to run or edit. Confirm selection with OK button.

Use COPY button to copy selected product to a new location. This is also used to create a new product.

Use DELETE button to delete the currently selected product.

## 2.8 STATIC CALIBRATION



1.  Before commencing for multi-weigher machines select the weigher to calibrate with the ENTER key. The **Calibration Counter** displayed on this first screen is a non-resettable counter that increments after each successful calibration. It is a weights and measures requirement to ensure no unauthorised calibrations can be performed.

2.  Ensure weigher is warmed up; allow at least 15 minutes for this.

3.  Ensure the weigher is empty and clean of product.

4.  Press  to begin calibration. Next screen is displayed. Follow screen instructions until successful calibration.

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**STATIC CALIBRATION CONTINUED**

```
Static Calibration                    2
                                     ⚖1

              Press '  👆  ' or
          Do an External Discharge
              to Empty Weighpan


[    Press '  🔳  ' button to abort    ]
[ Calibration and return to Main Menu. ]

   ┌──────┐        ┌──────┐
   │ 🔳   │        │  👆  │
   └──────┘        └──────┘
```

```
Static Calibration                    4
                                     ⚖1

          Ensure Weigher is Empty.

      Press '  ⚖  ' button to Perform
            Zero Calibration
                 🔳
[    Press '     ' button to abort     ]
[ Calibration and return to Main Menu. ]

   ┌──────┐        ┌──────┐
   │ 🔳   │        │  ⚖   │
   └──────┘        └──────┘
```

**STATIC CALIBRATION CONTINUED**

```
Static Calibration              5

                                    1

      Zero Calibration in Progress

              Please Wait ...
```

```
Static Calibration              6
                                    1
  Zero Calibration Successful
 Place    100.00  g  Calibration Weight
        on the Weigher and

    Press '  ⚖  ' button when Stable.

[    Press '  📄  ' button to abort      ]
[ Calibration and return to Main Menu. ]

    📄              ⚖
```

5.  Place calibration weight value as shown on the weigher and follow screen instructions.

**STATIC CALIBRATION CONTINUED**

```
Static Calibration          [?]
                            ⚖1



    Range Calibration in Progress

         Please Wait ...
```

```
Static Calibration          [0]
                            ⚖1
Range Calibration Successful

     Remove Calibration Weight.

   Press '  ⚖  ' button to complete.

[     Press '  [IF]  ' button to abort     ]
[ Calibration and return to Main Menu. ]

   [ [IF] ]        [  ⚖  ]
```

**STATIC CALIBRATION CONTINUED**

```
Static Calibration                    10
           Calibration Completed           ⚖1

   Weight :                        0.03 g




      [📄]          [⏻]

```
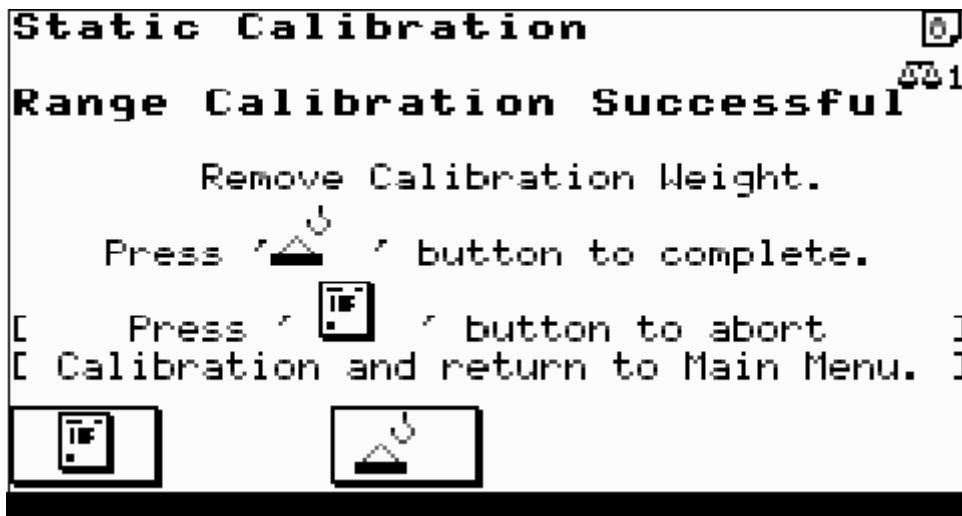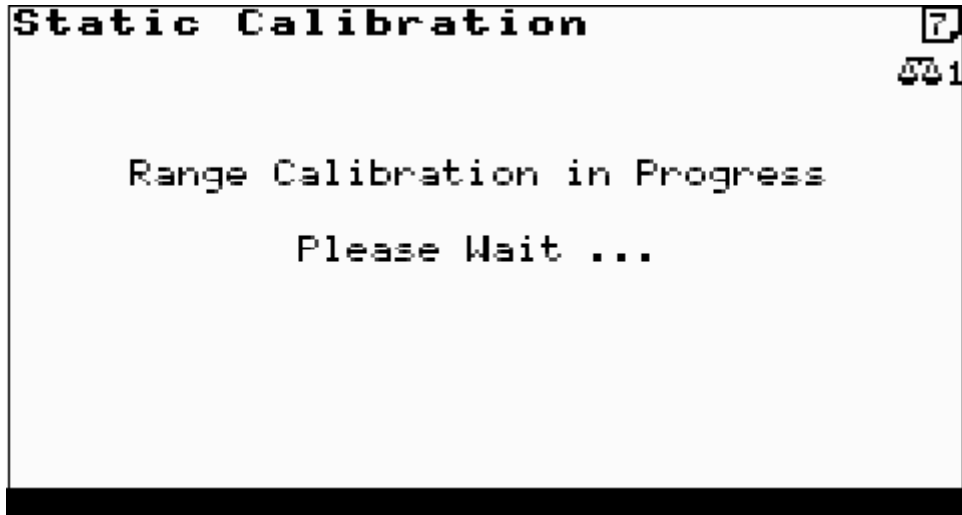
6.  Check successful calibration by displayed weight agreeing with actual weight on weigher.

## 2.9 MANUAL ZERO

Before commencing for multi-weigher machines select the weigher to manually zero with the ENTER key.

Ensure the weigher is empty and clean of product. Follow screen instructions.
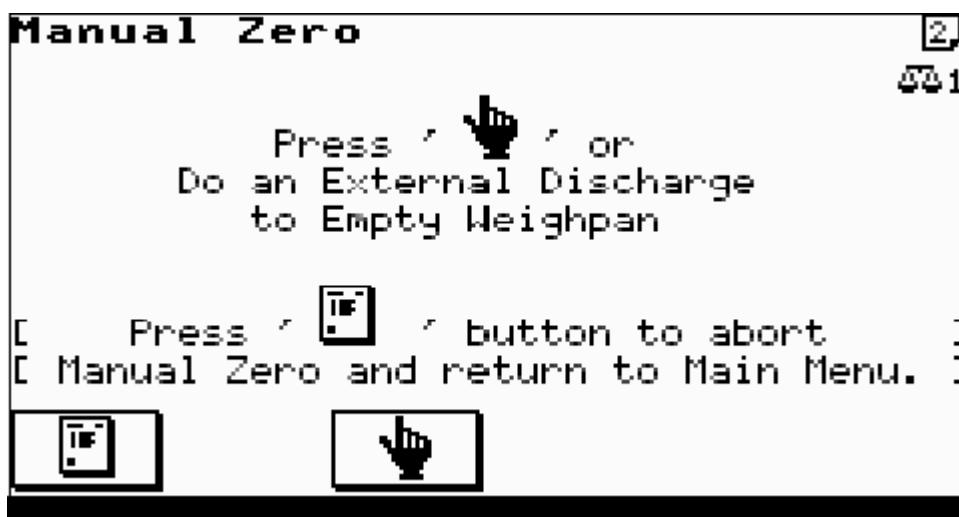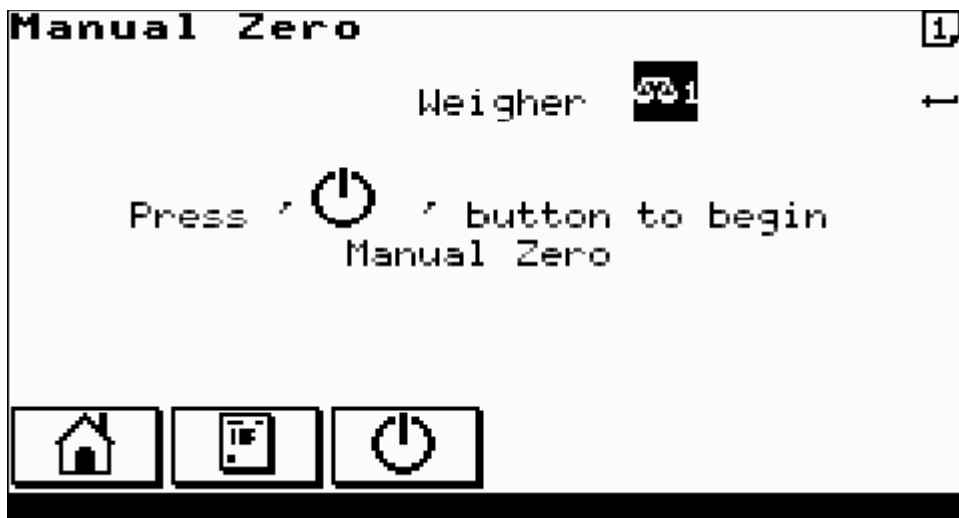
## MANUAL ZERO CONTINUED
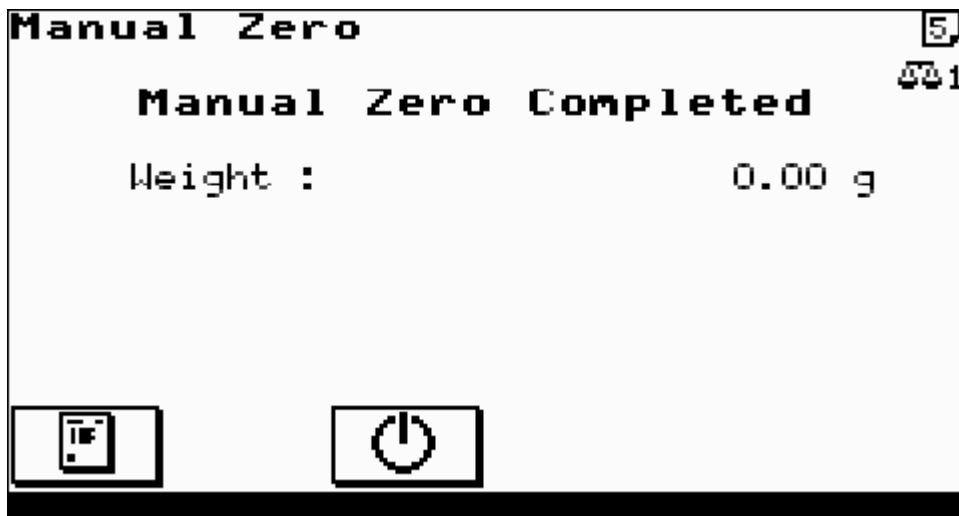




Return to main menu.

## 2.10 EMPTY MACHINE

To empty the machine of residual product.

Before commencing for multi-weigher machines select the weigher to empty with the ENTER key.

Press [image] to run normally until no product left in the machine. Low product probe is ignored.

Press [image] to empty the machine. Runs vibrators at fast speed with all the doors open.

## 2.11 DIAGNOSTICS
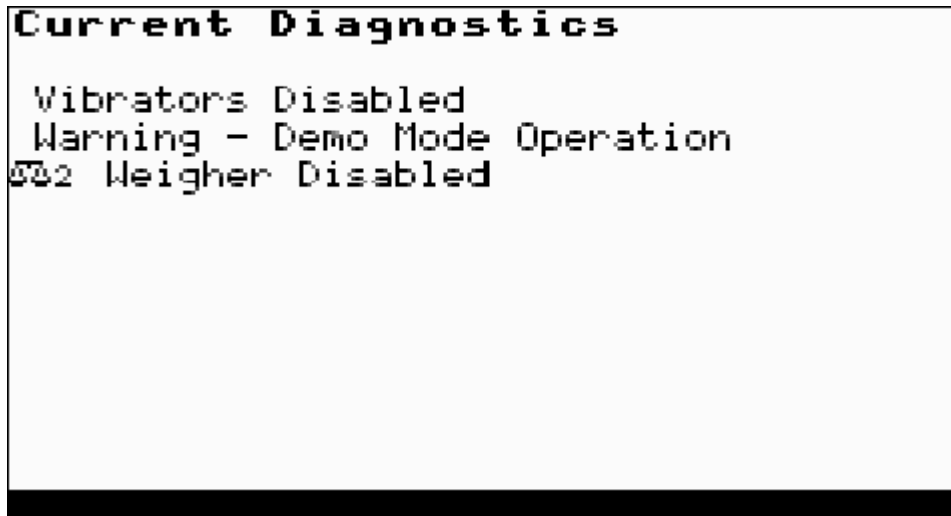


When any machine faults exist, the red lamp in the '?' key [HELP] flashes. Pressing the '?' will list the current diagnostic faults (press again to return to previous screen).

The diagnostic types are either general or weigher specific. Weigher specific diagnostic include the weigher number as an icon within the message. The possible diagnostics are listed below together with a brief explanation of their meaning.

GENERAL

1. "Memory Loss"
   The program memory has been corrupted. Either the battery is switched off or exhausted or there is a program fault.

2. "Reset DIL On"
   The reset DIL switch has been left on and should be switched off. This is DIL switch 4. With this switch on the program memory is cleared to all zeros at power on.

3. "Invalid System Parameters"
   There are inconsistencies within the machine configuration settings.

   a. Incorrect Checksum of Data

   b. Maximum In-Flight Adjustment > 75%

4. "Invalid System Shift Times"
   There are inconsistencies within the shift times settings.

   a. End of Shift Times must be in ascending order.

## DIAGNOSTICS CONTINUED

5. "Invalid System Refill Control"
   There are inconsistencies within the refill control settings.

   a. If 'infeed' output is selected then 'full hopper' input must be selected

   b. and if Refill is controlled by Low Hopper condition then a 'low hopper' input must be selected.

6. "Invalid Product Parameters"
   The current product code settings are incorrect.

   a. Incorrect Checksum of Data

   b. Invalid Product Weights

7. "Invalid Product Weight(s)"
   The current product code weights settings are incorrect.

   a. Target Weight < Underweight

   b. Target Weight > Overweight

8. "Printer Busy"
   The printer buffer is full up and further printouts cannot be done until it has emptied.

9. "Emptying"
   Machine emptying is in progress.

10. "Refilling Hopper"
    Hopper refilling is in progress.

11. "Hopper Low in Product"
    The 'hopper low level' input indicates low product and the vibrators are disabled.

12. "Re-Sample Required"
    No Piece Weight Sample information exists for the current product. Perform a Piece Weight Sample procedure or enter a new Item Weight within the product code.

## DIAGNOSTICS CONTINUED

13. "Vibrators Disabled"
There is no Mains Power supplied to the vibrator drive card or it is disconnected.

14. "Warm Up Period"
The machine has just been switched on and is warming up. Weighing may be slightly inaccurate during this period.

15. "Emergency Stop Input"
The 'emergency stop' input is ON.

16. "Line Stop Input"
The 'line stop' input is ON.

17. "Warning - Low Air Pressure"
The 'low air pressure' input is ON.

18. "Low Air Pressure Timed Out"
The 'low air pressure' input has been ON for a maximum time and the machine is stopped.

19. "Warning - Demo Mode Operation"
The demonstration mode has been selected. The machine cannot run in this mode.

## WEIGHER DIAGNOSTICS

1. Loadcell Not Communicating"
   The loadcell amplifier is not working or disconnected.

2. Re-Calibration Required"
   The operator has changed important weighing parameter(s) or the weighing information is corrupt.

3. "Weigher At Lower Limit"
   The weighing analogue to digital converter is giving its minimum output.

4. "Weigher At Upper Limit"
   The weighing analogue to digital converter is giving its maximum output.

5. "Zero Weight too Low"
   During the zero phase of the static calibration routine, the analogue to digital converter output is below a sensible minimum value. Check loadcell and LDU connections.

6. "Zero Weight too High"
   During the zero phase of the static calibration routine, the analogue to digital converter output is above a sensible maximum value. Check loadcell and LDU connections.

7. "Calibration Span too Low"
   For an Approved machine the span of the calibration weight must be above a certain percentage of the loadcell output.

8. "Calibration Weight too Low"
   The chosen calibration weight is too small for the size of loadcell.

9. "Calibration Weight too High"
   The chosen calibration weight is too large for the size of loadcell

10. "Invalid Weight Resolution"
    For an Approved machine the selected resolution is invalid for the calibration.

11. "Unable to Settle"
    During the weighing operation settling period, the a/d output was not stable within the set parameters. Check weighing parameters in machine configuration

## WEIGHER DIAGNOSTICS CONTINUED

12. "Unable to Tare"

During the weighing cycle tare the weigher was unable to achieve a settled zero level within the time allocated.

13. "Tare Weight too Low"

During the weighing cycle tare the tare weight level was below the zero calibration level. Check weigher with test weights to ensure it is operating correctly.

14. "Tare Weight too High"

During the weighing cycle tare weight was so high that the target weight is not achievable within the range of the machine. Check weigher with test weights to ensure it is operating correctly.

15. "Zero Span Exceeded"

For an Approved machine only, during a manual zero operation the zero level has drifted more than 4% of the range since the last static calibration.

16. "Weigher Disabled"

The weigher has been disabled from the front panel.

17. "Feed Disabled"

The 'feed enable' input is OFF.

18. "Weigher Not Feeding"

The 'feed fault' input was detected during a weighing cycle.

19. "Weighpan Open"

The 'weighpan open' input is ON and the weighing cycle is aborted.

20. "Weight Not Removed"

A new 'discharge call' input is received before the last weight has been removed. This only applies to machines, which do not have a weighpan.

21. "Low in Product"

The 'low hopper' input for the given weigher indicates low product and the vibrators are disabled.

## 3.0 PRODUCT PARAMETERS

### 3.1.1 PRODUCT WEIGHT



**Product Name:**
Enter up to 20 characters to describe the current product. Use the upper/lower case button to change between capital and miniscule letters and the '0' to '9' keys to enter alphanumeric characters. The space character is located on the '0' key and the 'CANCEL' key may be used to correct mistakes.

**Average/Minimum Weight Mode:**
Use the ENTER key to toggle between the two modes of weighing operation.

**Target:**
Product target weight

**Overweight:**
Weight before which the weighing is to be rejected as overweight.

**Underweight:**
Weight before which the weighing is to be rejected as underweight in an AWS system.

**Note: Overweight >= Target >= Underweight.**

## 3.2 PRODUCT OPTIONS 1

```
Product      001                    4        2

Autotare                    Timed        ←
Tare Interval                  5    mins
Topup                          On    ←
Maximum Topup Time          0.00  sec
In Flight Correction           Yes    ←




   [🏠]        [⇐]    [⇒]
```
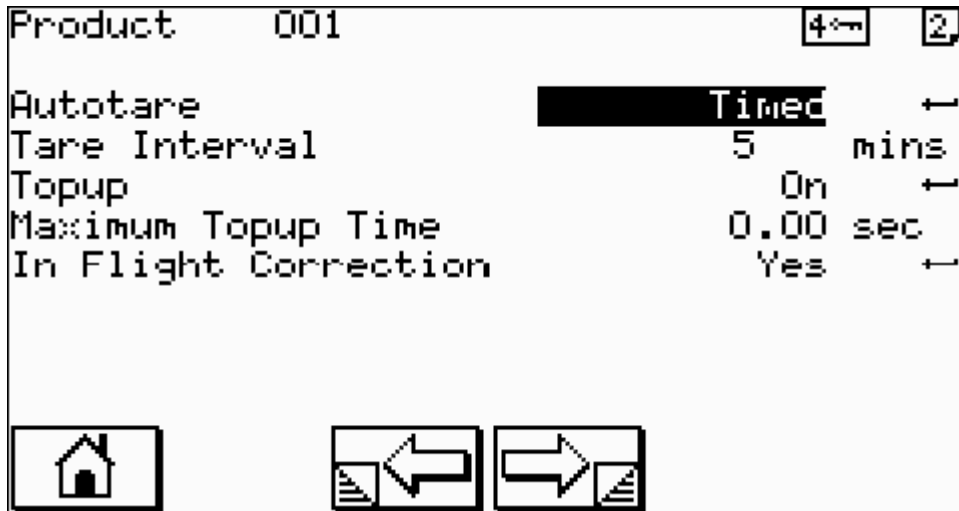
**Autotare**
Use the ENTER key to toggle between the tare modes.
OFF                         autotare is not enabled
EVERY CYCLE   The weighpan is tared at the beginning of every weigh cycle.
TIMED          The autotare is performed on a timed basis. (See next parameter.)

**Tare Interval**
*range*   0 – 20 minutes
Frequency at which autotare is performed.

**Topup**
Turn topup operation ON/OFF.
When topup is turned ON:
In **Average Weight Mode** if during the time that the weight is settling after feed, the settled weight falls below the **Underweight** then the feed is restarted in an attempt
to achieve the minimum target weight.
In **Minimum Weight Mode** if during the time that the weight is settling after feed, the settled weight falls below the **Target weight** then the feed is restarted in an attempt
to achieve the minimum target weight.
Feed will run up to the **Maximum Topup Time.** (see next page)

## 3.2.1 PRODUCT OPTIONS 1 CONTINUED

**Maximum Topup Time**
*range*   0.00 – 5.00 seconds
The maximum time allowed for an individual topup. A time of zero limits topup only to the threshold weight.

**In-Flight Correction**
Turn In-Flight Correction operation ON/OFF.
If the In-Flight Correction is turned ON:
In **Average Weight Mode** an error correction weight is calculated as 50% of the difference of the average weight collected over the **Sample Size** batch and the **Target Weight**. If the average weight is below the **Target Weight** then the Bulk and Fine Cut-off weights are moved up by the error correction weight. If the average weight is below then the Bulk and Fine Cut-off weights are moved down.

In **Minimum Weight Mode** an error correction weight is calculated as 50% of the difference of the minimum weight collected over the **Sample Size** batch and the **Target Weight**. If the minimum weight is below the **Target Weight** then the Bulk and Fine Cut-off weights are moved up by the error correction weight. If the minimum weight is below then the Bulk and Fine Cut-off weights are moved down.

This operation attempts to correct for any product falling (In-Flight) from the vibrator feeders after the feed has stopped

**Sample Size**
*range*   1 - 100
Number of discharges over which the in-flight correction calculations are performed.

## 3.3 PRODUCT OPTIONS 2

```
Product       001                        2←    3
Drops Per Bag                      1
Weighpan Open Time               0.30 sec
Weighpan Close Time              0.40 sec
```

**Drops Per Bag**
*range*   1 – 100
Enter the number of discharges required to fill a bag.

**Weighpan Open Time**
*range*   0.00 – 5.00 seconds
Time for which weighpan remains open during product discharge upon completion of a weighing.

**Weighpan Close Time**
*range*   0.00 – 5.00 seconds
Time after starting to close the weighpan when the next feed cycle commences. Time is to allow the weighpan doors to completely close before restarting feed.

```
Product      001                      [4←]  [⌐]
Rear Probe Enabled      During Feed        ←

   HOPPER LOW STOP DELAY          1.00 sec
   HOPPER LOW START DELAY         0.50 sec

   TIMER FUNCTION LENGTH          0.50 sec

   [🏠]         [⇦]  [⇨]
```

**Rear Probe Enabled**
Use the ENTER key to select when the rear probe is enabled

**Hopper Low**

Start & Stop delays only if  LOW LEVEL PROBE FITTED

**Timer Function**

Length (Duration of Function Output)

***Example Use, Product Settling Duration Time***

## 3.4 PRODUCT FEED
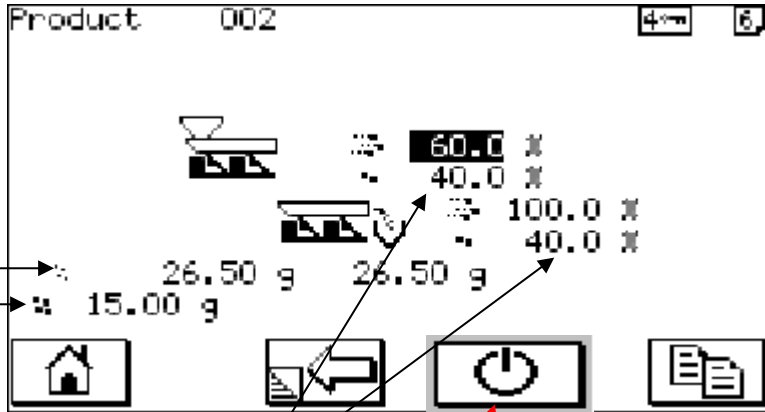


**Vibrator Speeds**
*range*   0.0% - 100.0%
Enter the fast and slow vibrator amplitudes for controlling the feed rate of the current product.

**Bulk Cut-off Weight**
*range*   0 – target weight
Enter the weight at which the vibrators will switch from fast to slow feeding.

**Fine Cut-off Weight**
*range*   0 – target weight
Enter the weight at which the vibrators will stop feeding and the weigher start to settle.

Use the COPY button to copy the entered settings to all weighers.

**If Accelerometers Are Enabled**

This button memorises the current vibrator amplitude

## 4. MACHINE CONFIGURATION

```
Configuration Menu

   1)   Input Configuration
   2)   Output Configuration
   3)   Weighing Configuration
   4)   Shift/Batch Configuration
   5)   Serial Comms. Configuration
   6)   Setup Time / Date
   7)   Machine Configuration
```
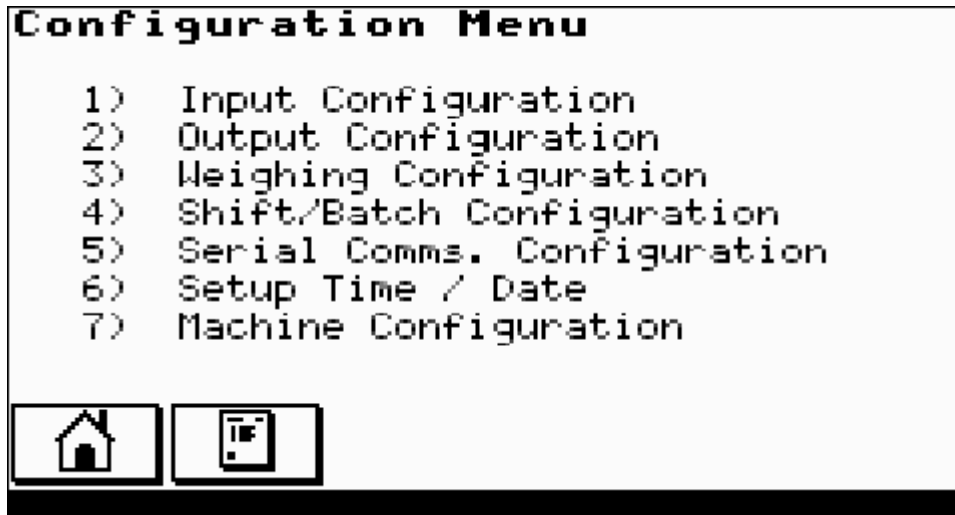
The detailed setup of the machine is done from these screens. Usually this is only done when the machine is first installed.

## 4.1 INPUT CONFIGURATION

```
Input Configuration          1

Input 1      Lane 1 Discharge Call
Input 2      Lane 1 Vib. Probe 1
Input 3
Input 4
Input 5
Input 6
Input 7
Input 8
```
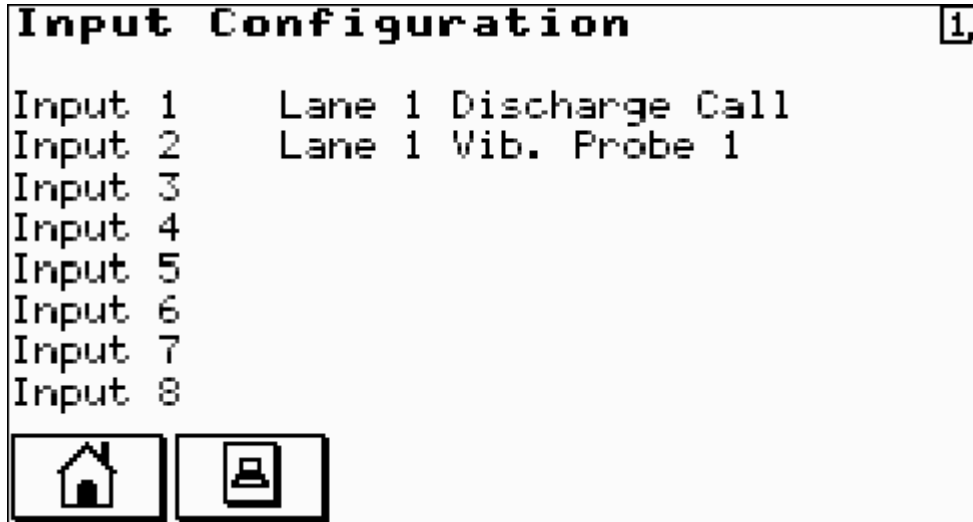
This screen allows each digital logical input to be assigned to a physical input. Use the ENTER key to select the logical input and the UP/DOWN ARROW keys to select the physical input.

## 4.2 OUTPUT CONFIGURATION



This screen allows each digital logical output to be assigned to a physical output. Use the ENTER key to select the logical output and the UP/DOWN ARROW keys to select the physical output.



This screen allows the sense of each individual digital output to be inverted. Use the ENTER key to toggle between YES/NO.
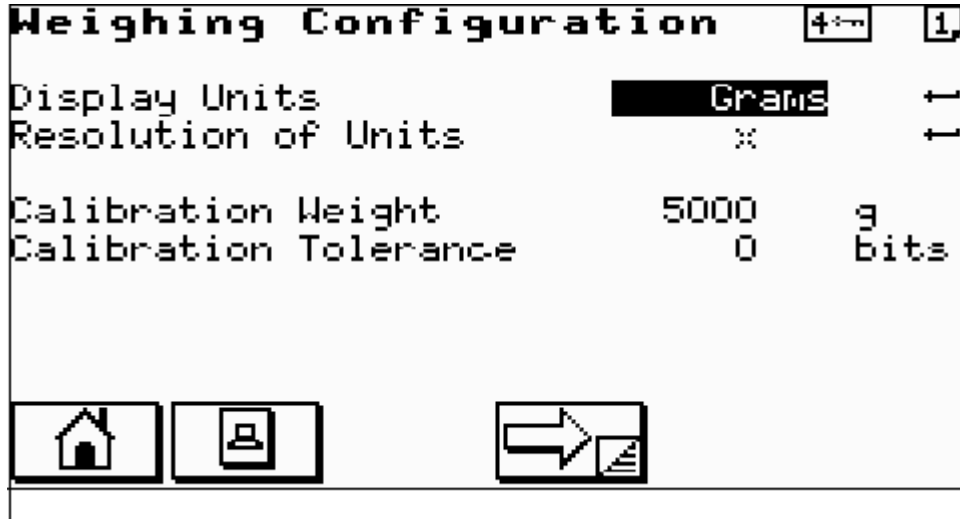
## 4.3 WEIGHING CONFIGURATION

### 4.3.1 WEIGHING UNITS



**Display Units**
Select the weighing units Grams or Kilograms with which the machine will operate.

**Resolution of Units**
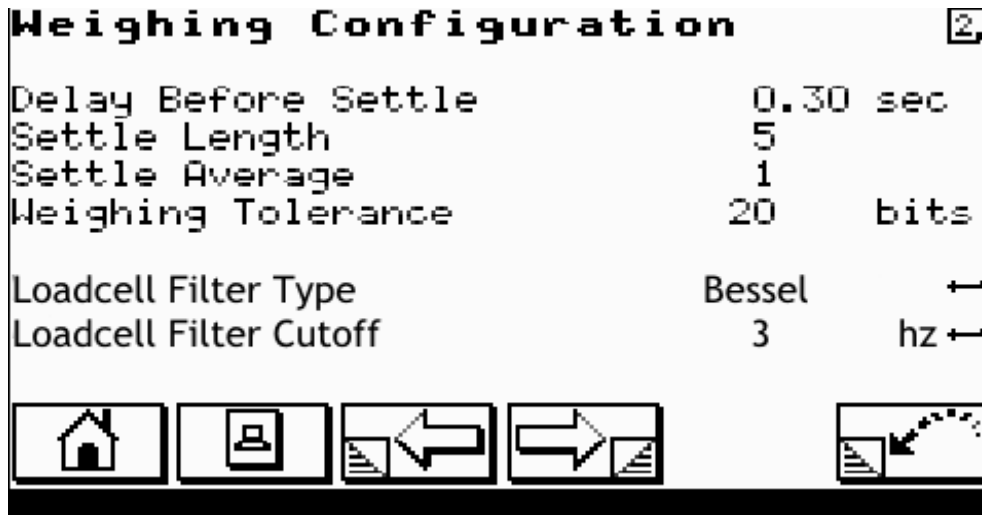X / X.X / X.XX / X.XXX
Select how the units are to be displayed.

**Calibration Weight**
Enter the calibration weight with which the weighers are to be statically calibrated.

**Calibration Tolerance**
Enter the calibration tolerance in a/d bits used in determining when the weighing is settled and stable during calibration.

## WEIGHING SETTLE

```
Weighing Configuration          2
Delay Before Settle          0.30 sec
Settle Length                5
Settle Average               1
Weighing Tolerance           20    bits

Loadcell Filter Type        Bessel      ←
Loadcell Filter Cutoff       3     hz ←
```

**Delay Before Settle** *range*     0.00 – 5.00 seconds
This time is the delay after the feed has stopped before the program looks for a settled weight.

**Settle Length** *range*    1 – 126
Enter the number of values which determine the length of the settle buffer.

**Settle Average**
Enter the frequency at which values are placed in the settle buffer. The frequency is defined in multiples of 20 milliseconds.

**Weighing Tolerance** *range*     0 – 1000
Enter the weighing tolerance in a/d bits used in determining when the weighing is settled and stable.

**Loadcell Filter Type** *range*     Off, 7.3 – 1.1 *Typical   Bessel*
Select the digital filter Type. Bessel, Butterworth, Fast Bessel or gaussian

**Loadcell Filter Cutoff**  *range*   1 – 14 *Typical  1*
Enter the required filter setting for the loadcell Digitiser, a higher filter equals less damping and a lower frequency equals heavier damping.

## WEIGHING OPTIONS



**Delay Before Tare**
*range*   0.00 – 5.00 seconds
This is the time between starting a tare and checking for a settled weight within the calibration tolerance.

**Maximum Tare Limit**
*range*   0 – 100 %
Enter maximum tare level as a percentage of the Target Weight.

**Bulk Hysteresis**
*range*   0 – 100 %
Enter the bulk hysteresis as a percentage of the bulk weight. If during the fine feed of a weighing cycle the weight falls below this percentage of the bulk weight, the machine will revert to bulk feeding.

**Maximum In-flight Adjust**
Enter the maximum in-flight adjustment as a percentage of the target weight. When performing in-flight correction this is the maximum amount the cut-off points will be adjusted by for any one correction.

## WEIGHING BAGMAKER

```
Weighing Configuration        4

Weighpan Fitted              Yes      ⏎
Weighpan Discharged Check     No      ⏎
Bulk Blindfold Time          0.00 sec
Fine Feed Complete Time      0.40 sec
Bagmaker Type          Non-Cyclic     ⏎
Delay Before Full Bag        0.00 sec
Full Bag Energise Time       0.50 sec
```
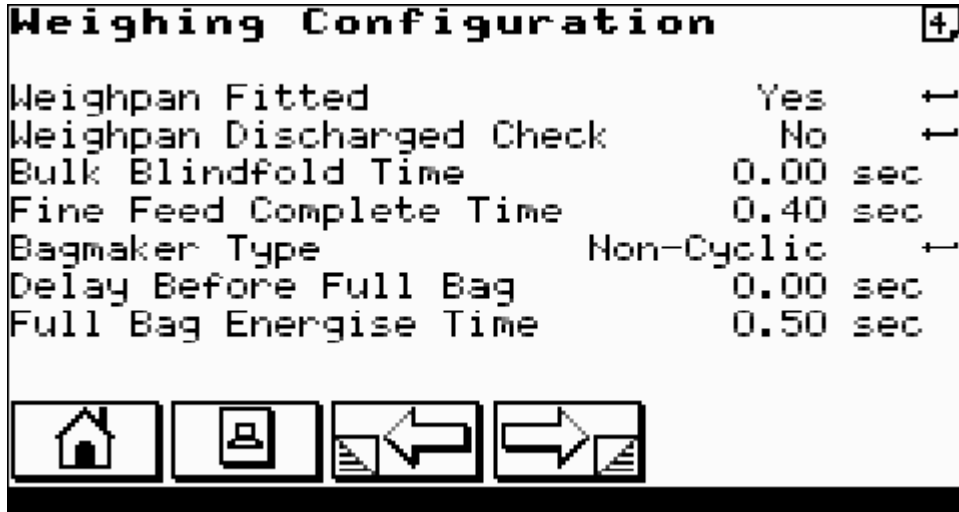
**Weighpan Fitted**
Select whether a weighpan is fitted or not. If no weighpan selected the machine will assume it is feeding directly onto a weigh platform.

**Bagmaker Type**
Type of bagmaker fitted to the weigher.
CYCLIC
NON-CYCLIC

**Delay Before Full Bag**
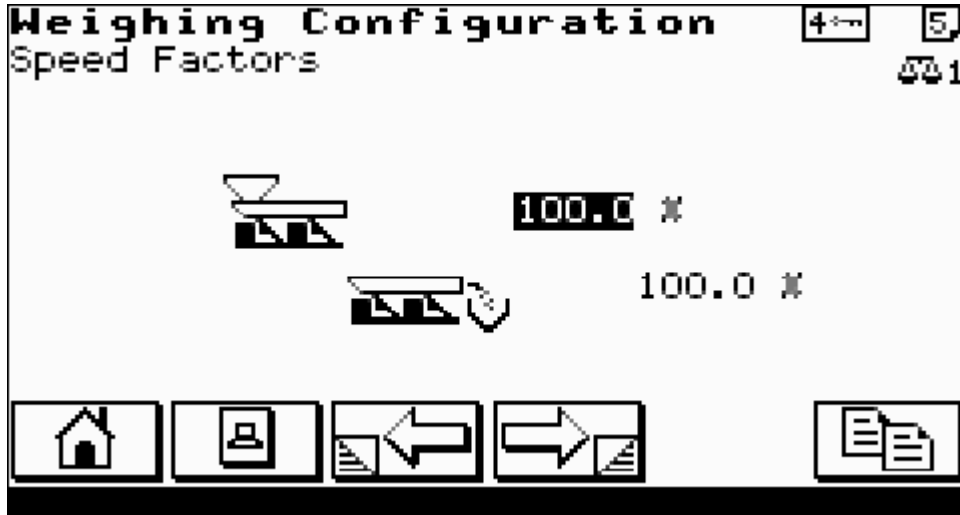*range*   0.00 – 5.00 seconds
Enter the time between discharging the weighpan and issuing the full bag signal.

**Full Bag Energise Time**
*range*   0.00 – 5.00 seconds
Pulse time to the bagmaker.

## WEIGHING VIBRATOR FACTORS



**Vibrator Speed Factors**
This percentage scales the vibrator amplitudes as set in the product code. It is used to balance the vibrator outputs so that they feed at the same rate for the same amplitude.

## SHIFT / BATCH CONFIGURATION

```
Shift/Batch Config.          4⟵   1⟍
            Batch by Quantity           ⟵
Batch Interval              10

Number of Shifts             3
End of Shift 1            02:00 hh:mm
End of Shift 2            10:00 hh:mm
End of Shift 3            18:00 hh:mm

  🏠        🖨
```

**No Batch Statistics / Batch By Time / Batch By Quantity**
Toggle ENTER to select type of batch statistics required.

**Batch Interval**
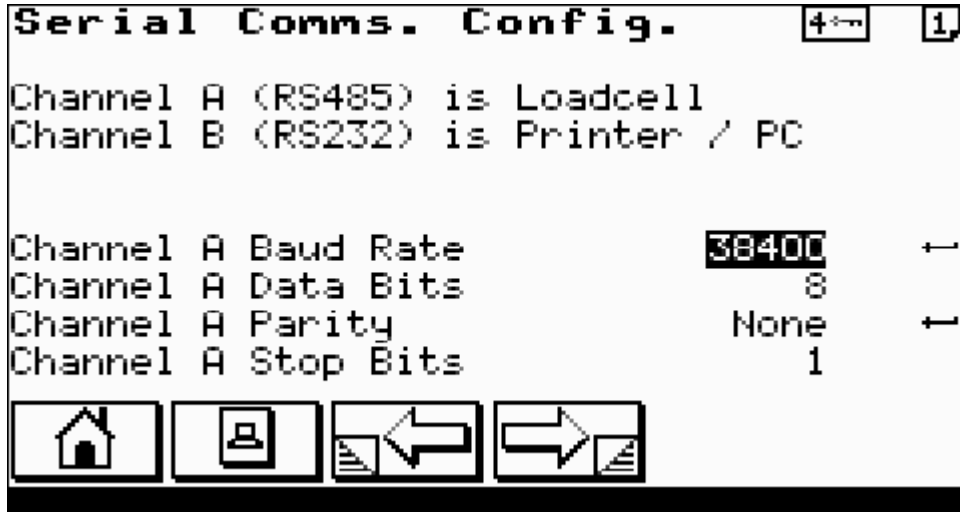Frequency of batch statistics printout.
For **Batch By Time**, ENTER
For **Batch By Quantity**, ENTER number of drops.

**Number of Shifts**
Enter the number of shifts required, followed by their start times as hours:minutes.

## SERIAL COMMUNICATIONS SETUP

```
Serial Comms. Config.    4←┐    1┘

Channel A (RS485) is Loadcell
Channel B (RS232) is Printer / PC


Channel A Baud Rate        38400      ←┘
Channel A Data Bits            8
Channel A Parity            None       ←┘
Channel A Stop Bits            1
```

For each of the serial communications channels shown, setup the following parameters.

**Baud Rate**
Press ENTER key until correct baud rate for the device is shown

**Data Bits**
Select either 7 or 8 data bits as required by the device.

**Parity**
ODD EVEN or NONE.

**Stop Bits**
Select 0 or 1.

**SETUP TIME / DATE**

```
Setup Time / Date

 Set Time (hh.mm)        14:00

 Set Date (dd.mm.yy)     13/09/01
```
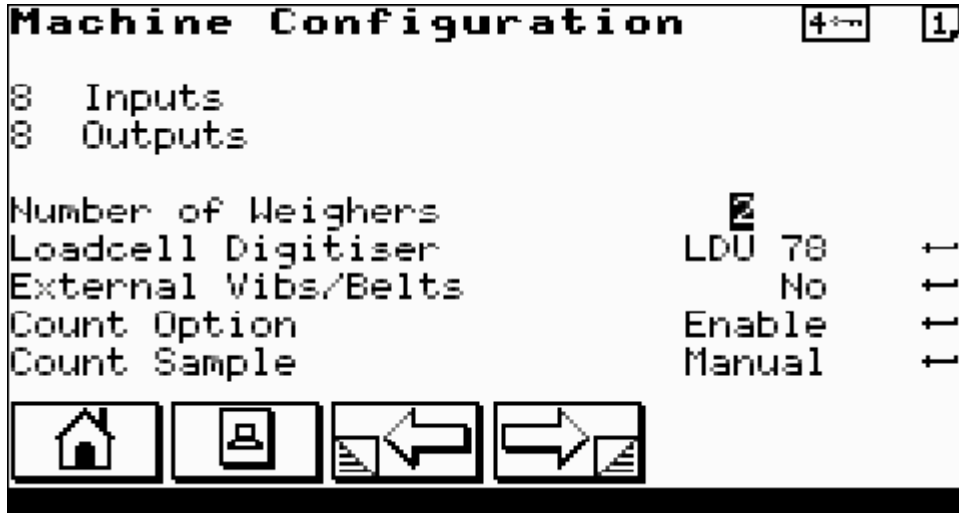
Setup current time and date. The system clock is battery backed and will maintain the correct time even when the machine is switched off.

## 4.7 MACHINE CONFIGURATION

### 4.7.1 MACHINE SINGLE / TWIN



**8 Inputs / 16 Inputs**
Select number of physical inputs fitted to the machine. On simple machines this entry cannot be changed.

**8 Outputs / 16 Outputs**
Select number of physical outputs fitted to the machine. On simple machines this entry cannot be changed.

**Number of Weighers**
Toggle ENTER to select between a single or a twin weigher.

**Count Option**
Toggle ENTER to ENABLE / DISABLE the count option.
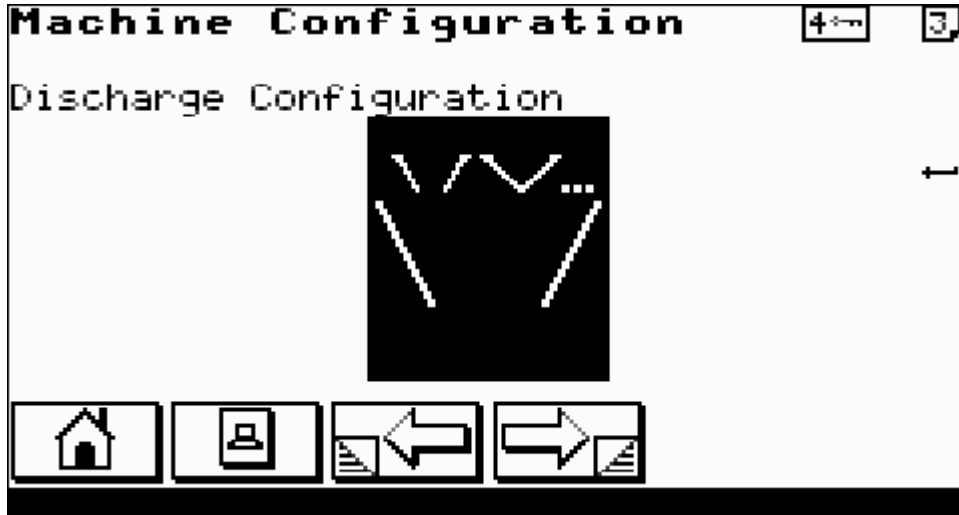
## 4.7.2 MACHINE VIBRATOR CONFIGURATION



**Vibrator Configuration**
Select the allocation of vibrator channels. Select the image to represent the particular layout of the vibrator configuration.

## 4.7.3 MACHINE DISCHARGE CONFIGURATION



**Discharge Configuration**

Select the method of discharge. The weighers can be discharged by a common call input, where the first weigher which was ready is discharged, or each weigher can have an individual call.

## 4.7.4 MACHINE USER LANGUAGE

```
Machine Configuration      ⊞
No Printer Fitted          ↩


Machine Identity
English                    ↩

 [🏠]   [🖨]   [↩]
```

**Printer**
Choose 40 COLUMN / 80 COLUMN or NO PRINTER.

**Machine Identity**
Enter identity name of up to 20 characters. Used on printouts to identify weighing machine.

**Language**
Select language for display and printouts.

### 4.7.4 MACHINE PASSWORD SETUP



This screen can only be selected by the current level 4 password holder. Enter or reassign the password level codes.

## 5.0 TESTING THE MACHINE

```
Test Menu

   1)   Input Test
   2)   Output Test
   3)   Vibrator Test
   4)   Gate Test
   5)   Weighpan Test
   6)   Static Weighing Info.
   7)   Dynamic Weighing Trace
   8)   Settled Weights

  [🏠]   [📄]
```

From the test menu select test area of interest.

## 5.1 INPUT TEST

```
Input Test                      [1]

   1 )  Lane 1 Discharge Call    O
   2 )  Lane 1 Vib. Probe 1      O
   3 )                           O
   4 )                           O
   5 )                           O
   6 )                           O
   7 )                           O
   8 )                           O

  [🏠]   [🛠]        [➡]
```
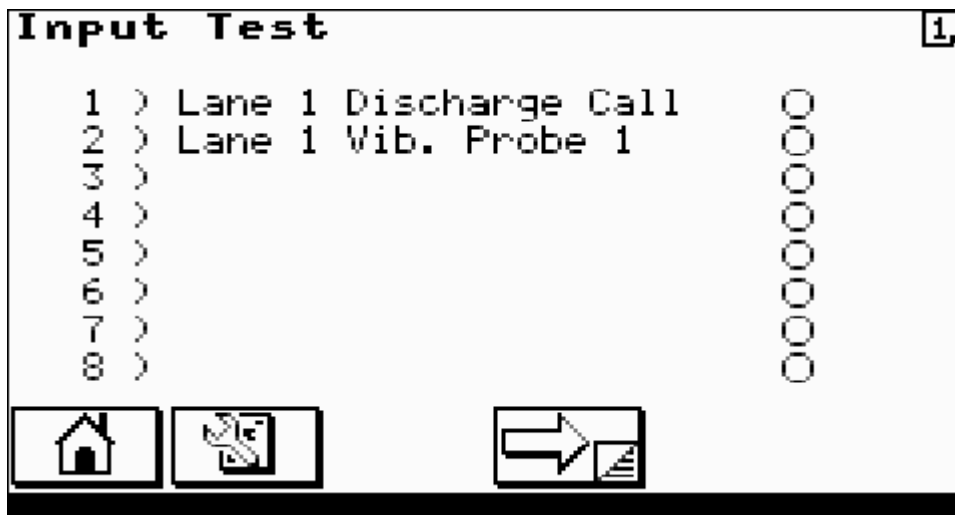
Circle indicators show state of inputs ON/OFF.

# COTSWOLD MECHANICAL LTD
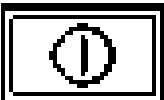
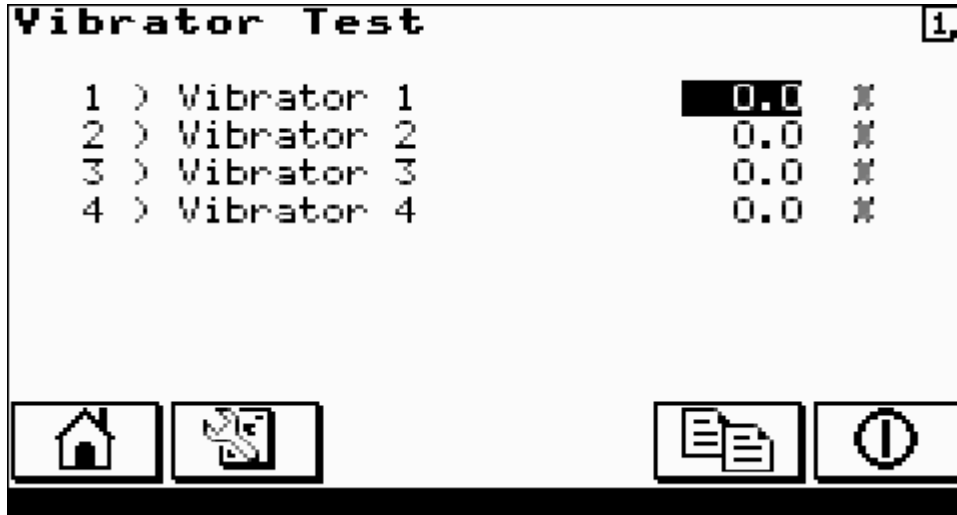## 5.2 OUTPUT TEST
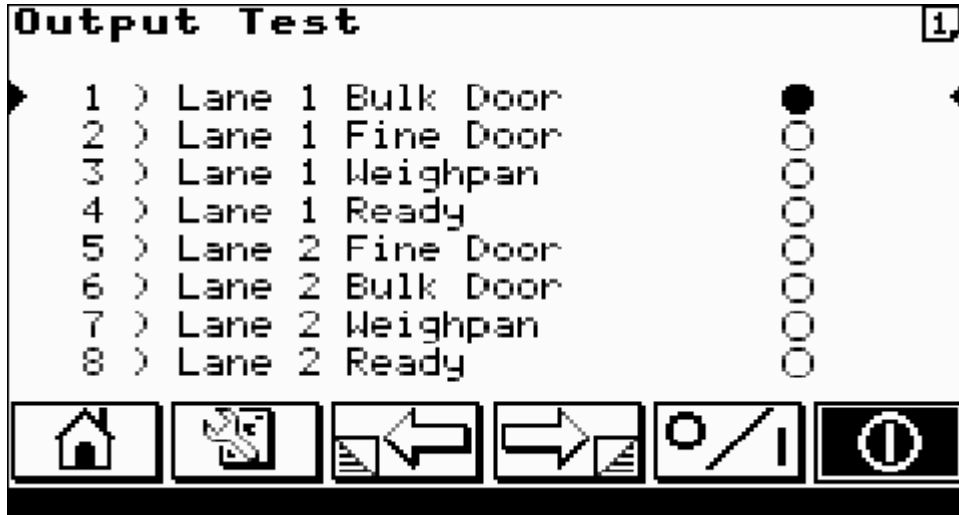


Use UP/DOWN ARROWS to select output.

Select  to turn on/off selected output.

Select  to cycle the selected output.
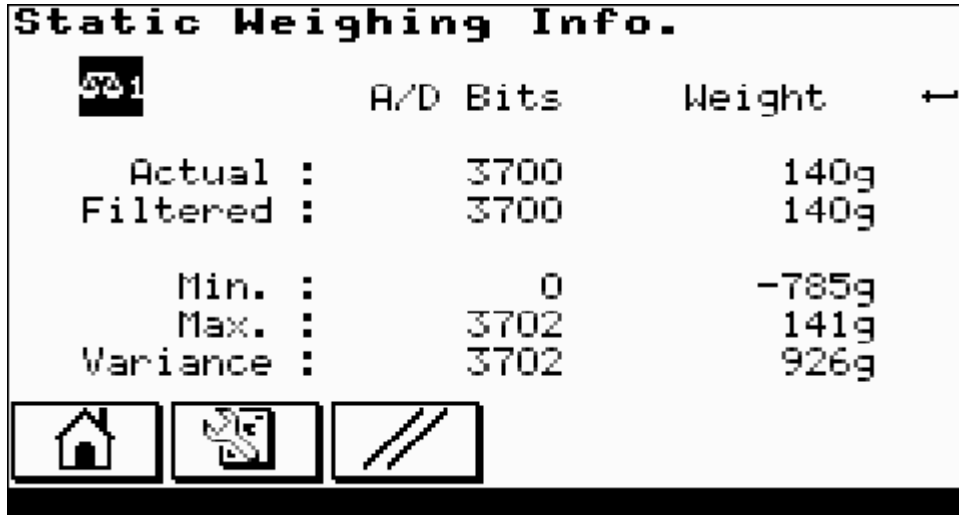
Press  /  to RUN / STOP the test.

## 5.3 VIBRATOR TEST



Enter test vibrator amplitudes.

Press  /  to RUN / STOP the vibrators.

## 5.4 STATIC WEIGHING INFO

```
Static Weighing Info.
   No.1          A/D Bits      Weight       ↵

   Actual :        3700          140g
 Filtered :        3700          140g

     Min. :           0         -785g
     Max. :        3702          141g
 Variance :        3702          926g
```
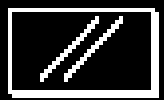
Shows current state of the loadcell a/d output and its conversion into weight.

Press [icon] to reset the Minimum, Maximum, Variance information.

## 5.5 DYNAMIC WEIGHING TRACE
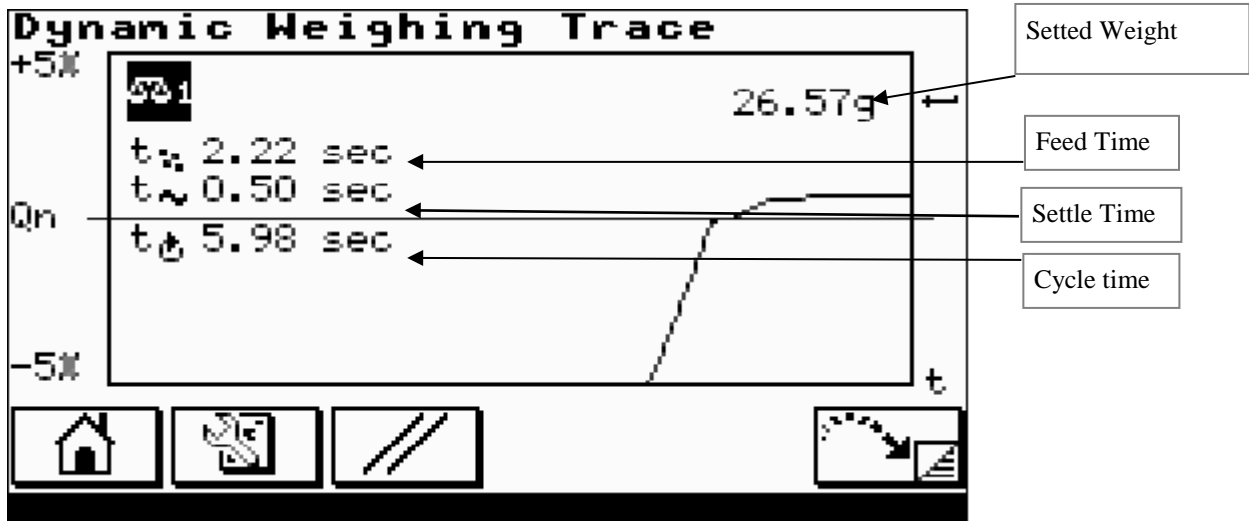


Press ENTER to select weigher of interest.

Press  to reset the weighing trace information.

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## PRODUCT CODE OPTION  FOR COUNTING

## FEED BY COUNT



When the Count Option is Enabled (See Section **0  4.7.1 MACHINE SINGLE / TWIN**) then the **Feed by Count** option may be selected within the product setup. The entries below apply to **Feed by Count.**

**Item Weight**
Weight of single item of the pieces to be counted.

**Target**
Number of items to be counted as the target. Based upon the **Item Weight** entered above the weigher calculates a target weight based upon this count.

**Overweight**
Number of items to be rejected as overcount.

**Underweight**
Number of items to be rejected as undercount.

# End