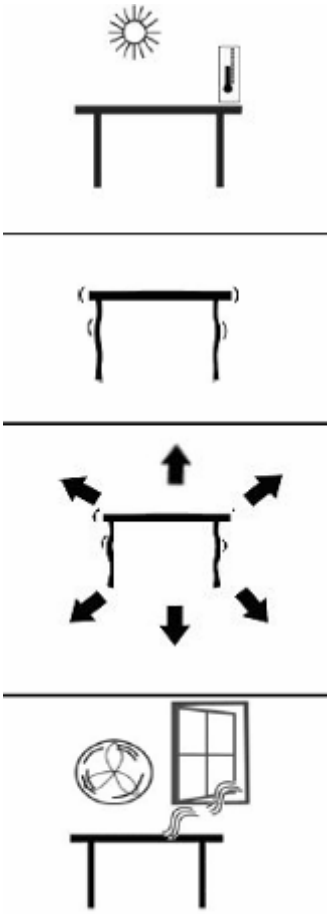
QHD series

Counting Scale

SERVICE MANUAL

CONTENTS

1. PRECAUTIONS



- Read this manual before operating or servicing this equipment.
- Follow these instructions carefully.
- Disconnect this equipment from the power source before cleaning of performing maintenance.
- Keep the manual for your future reference.
- Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.
- Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.
- Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.
- Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.
- Avoid air movement such as from fans or opening doors. Do not place near open windows.
- Do not stack material on the scales when they are not in use.
- Keep the scales clean.

2. INSTALLATION

Unpacking

Carefully take the balance out of its package, make it sure its not damaged and all accessories are included.

Accessories,

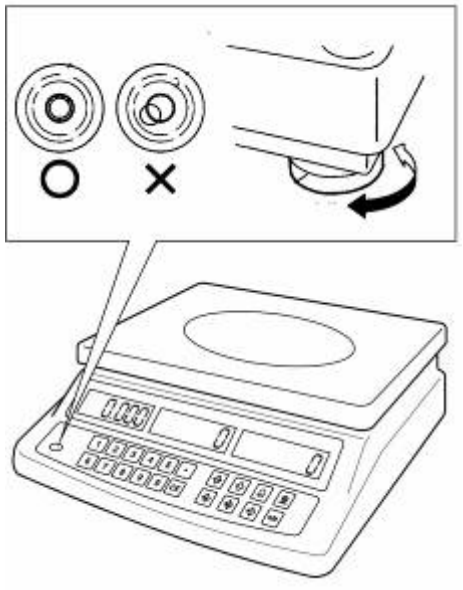
1. Balance
2. Adaptor
3. Stainless steel pan
4. Product manual

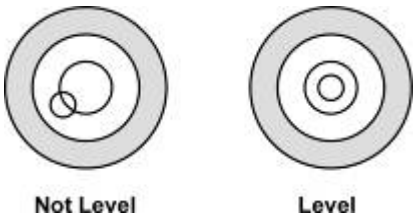
Keep the packaging material for your future use.

SETTINGS

Local Scale:

- Place the scale on a table.
- Place the platform in the locating holes on the top cover.
- Do not press with excessive force as this could damage the load cell inside.
- Check the water mark. If, bubble is not centre adjust the leveling feet until reach centre. Check the level when you change the location.





- Attach the power supply cable to the connector on the right side of the scale base. Plug in the power supply module.
- Turn on the Scale. The power switch is located at the right side of the scale base.

- The scale will be shown the model number in the "**Weight**" display and will be start self test.

Remote Scale:

- The QHD+ Series can be connected to any size of load cell type weighing base through the Remote scale port on the left side of the scale case. Ensure you have the correct base for the scale as each is matched for calibration.
- Place the remote scale platform in the position where it is to be used. Level the scale by adjusting the four feet. If fitted with a spirit level then it should be adjusted such that the bubble is in the center.
- Press Local Item key to change remote mode and check weighing performance.

Remote Scale Connection

The cable of the load cell goes to a 9 pin DB9 d-subminiature plug connecter with following connections.

Pin	Connection
1 and 2	Excitation+(5V)
4and 5	Excitation- (0v)
7	Signal-
8	Signal+

Note: The sense wires connections of a six wire load cell are not used but can be connected to the respective Excitation pins.

Remote Scale Setup

The remote scale should set for a realistic resolution with respect to the input provided by the load cell/s.

If a single 2mV/V load cell is fitted and more than 60% of the load cell is used for full capacity then the high output of >6mV span makes it possible to set a high resolution.

If this criterion is met then the remote scale can be set to a high resolution with a maximum of 1/30,000, for example: 300kg x 10g.

It will also be possible to sample on the remote scale with the same accuracy as the Local.

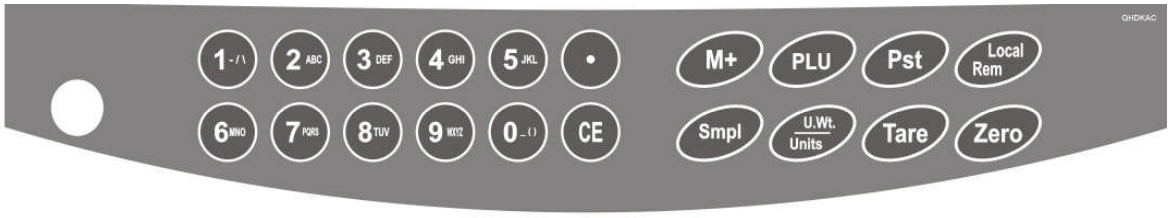
Where more than one load cell is fitted or the total load cell capacity is not utilized then a reduced resolution should be selected in the remote scale technical set up. For example, if a system uses four 2mV/V 1000kg load cells for a scale of 1000kg capacity then the span output at full scale will be only 2.5mV.
In this situation the resolution should be reduced to give a good number of ADC counts per displayed division, for example, set to 1:5000 or 1000kg x 0.2kg.

Setting a high resolution without providing a good input to the remote scale ADC will not give better accuracy and may make the scale difficult to meet performance specification.

For best performance ensure a minimum of 0.1uV/d.

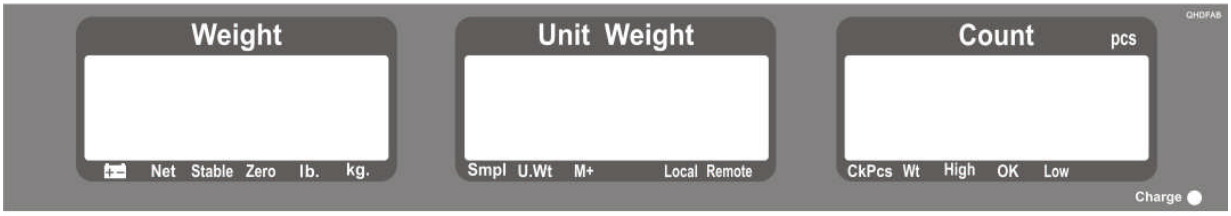
3. NAME AND FUNCTIONS

Key Board



Keys	Press this key to
1 to 0	Numeric Keys. Enter to individual unit weights and the present tare
CE	Clear incorrect entries and error conditions
•	Decimal Point. Numeric input numbers select to the left.
Zero	Returns the display to zero.
Tare	Enter the clear tare weights, Storing the current weight as tare value. Subtracting the tare value from the total weight and displays the result as net weight.
U.Wt. Units	Manually enter the weight of sample, also changes the unit if they are enabled.
Smpl	Enter the numbers of items, used for the unit weight.
M+	Add the current count data aggregated. Also evokes the memory if pressed to balance empty. Can add up to 99 values, or until it reaches the maximum displayable digits
PLU	Enter to store and recall the PLU
Pst	To set the upper limit of the number of items counted and back light setting.
Local Rem	To select the local or remote scale.

Display



The arrow "▼" above the symbols

Weight Display

	Low Battery
Net	Net Weight Display
Stable	Stable Display
Zero	Zeroing Display
Lb / kg	Current Weighing Mode

Unit Weight Display

Smpl	No of samples is very low
U.Wt	Unit weight is below the minimum weight
M+	Data entered into the memory
Local / Remote	Active Scale in use

Count Display

CkPcs	Active in Counting Mode
Wt	Active in Weighing Mode
High	Check Result above the high limit
OK	Check Result with in the limit
Low	Check Result below the low limit
Charge	Status of the battery charging

4. OPERATION

Initial Start-up

Warm-up time of 15 minutes stabilizes the measured values after switching on.

1. **Power ON/OFF**
   Power switch is located below the right side of the scale. Switch on the scale by pressing on/off. The display is switched on and the self test is started.
   If you want to switch off press backward the key.

2. **Switch to Local / Remote Scale**

   - By pressing Local Rem the display changes from one to other scale.

     In Local Scale change Local

     In Remote Scale change remote

   - The basic weighing functions are same for both the scales- local and remote.
   - The number of weighing divisions may be less on the remote scale dependant on the total capacity of the load cell/s used.

3. **Zero**
   Environmental conditions can lead to the balance exactly zero in spite of the pan not taking any strain. However, you can set the display of your balance to zero any time by pressing Zero key and therefore ensure that the weighing starts at zero.

4. **Tare**

   The weight of any container can be tared by pressing Tare button so that with subsequent weighing the net weight of the object being weighed is always displayed.
   - Load weight on the pan.
   - Press Tare key. Zero is displayed, and tare is subtracted.
   - Remove weight from the platform. Tared weight is displayed. It can set only one tare value. It can display with a minus value.
   - Press Tare key. Zero is displayed, tare weight is cleared.

Enter a tare value using by numeric keys.

This method allows you to enter a value for the tare weight from the keypad. This is useful if all containers are the same or if the container is already full but the net weight is required and the weight of the container is

known.

- Ensure display is in zero.
- Enter the known tare weight by using numeric keys.
- Press Tare to enter, weight will be stored as tare weight and displayed with minus sign and net indicator.
- Place the container on the platform, net weight will be displayed.
  The tare will be rounded up according to the readability of the balance. For example, if a tare value of 103g is entered into the 60Kg scale with 5g readability, then the display will be shown -105g.

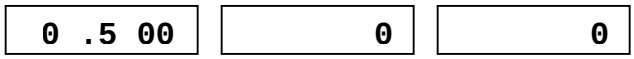
5. Accumulation

The balance can totalize weight values or count quantities.

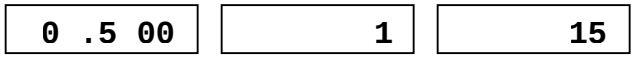
Manual Accumulation

The values (weight and count) shown on display can be add to the memory by pressing M+ key. Set the parameter **F1 off – print – au off**

- Place the goods to be weighed.



- Wait few seconds for display stability then press M+ .
- The weight display will be show the total weight, the unit weight display will be show the number of items and count display will be show the total accumulated count. The values will be displayed 2 seconds.



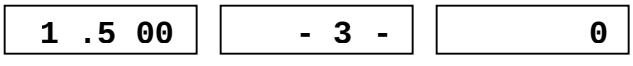
- The scale must return to come zero or negative number before adding another samples.
- More products can be added by pressing M+ . It can add up to 99 entries or until the capacity of the weight display is exceeded.

Display of Saved Data

To check the total value saved, press M+ key when the display is in zero. Total weight will be displayed two seconds.

Delete Saved Data

To clear the memory, press M+ the display will be shown saved data.



Press CE during the display, delete all saved accumulation data.

0 00	- 0 -	0

Automatic Accumulation

Weighing values automatically accumulate total, when the goods is unloaded and with out key pressing.
Set the parameter **F1 off – print – au on**

- Place the goods on the platform

1 .5 00	0	0

- Wait few seconds for display stability and a control beep.
- Unload the goods from the platform, the weighing value is added into the memory

1 .5 00	- 1-	0

- The scale must return to come zero or negative number before adding another samples.
- It can add up to 99 entries or until the capacity of the weight display is exceeded.

6. Parts Counting

In order to do parts counting, it is necessary to know the average weight of the items to be counted. This can be done either by weighing a known number of the items and letting the scale determine the average unit weight or by manually inputting a known unit weight using the keypad.

To count a greater number of parts the average weight per part has to be determined with a small quantity.

The average piece weight can be increased at any time during the counting process, by entering the displayed number of items and confirming by pressing Smpl.

Weighing a sample to determine the Unit Weight

- Reset the balance to zero or tare the empty container if necessary.
- Place the known quantity of items on the scale, wait few seconds for display stable.
- Enter the number of quantity by using numeric keys. Eg: 15

1 .5 00	15	0

- Enter the Smpl key to confirm. The scale determines the average parts weight.

1 .5 00	0 .15	10

- As more items are added to the scale, the weight and the count will increase.
- If the scale is not stable, the calculation will not be completed.
- If the weight is below zero, "**Count**" display will show negative count.

Enter a known Unit Weight

If already know the unit weight, and then it can enter by using numeric keys.

- Enter the value of unit weight by numeric keys.
- Press U.Wt Units during the unit display flashing.
- If in the weight display as "kg" unit is active, the average piece weight will be displayed in "g". If as "lb" is active, the average piece weight will be displayed in "lb".

Automatic Update of Unit Weight

- The scale can automatically update the unit weight, when a sample less than the initial sample count are added.
- A beep will be heard when the value has updated.
- By pressing U.Wt Units key, can be blocked unit weight and auto update

Check Weighing or Count Pre-set

Check weighing is a procedure to cause an alarm to sound when the weight or piece quantity within the checking limits. Limits can beset by using numeric keys.

Setting the Checking Limits

Press Pst key, the active mode will be shown

Pst	net

Press U.Wt Units key to select counting

Pst	cnt

Press Tare key, the active high count limit will be shown

Hi cmt	1 500

Use numeric key to enter desired and if necessary press CE to clear.
Press Tare key, the active low count limit will be shown

lo cmt	500

Use numeric key to enter desired and if necessary press CE to clear.
Press Tare key to return weighing mode.

- For check limits, just one limit value can set
- If both values are deleted, the check mode is deactivated.
- The beep sound will be worked as described in the beep parameter
  f1 off , beep

PLU (Product Look Up)

PLU are used to store items. It can store up to 99 PLU numbers.

These data should be entered against a particular PLU before the weighing process starts, so that the desired PLU's can be recalled during the weighing process. The data can be stored and recalled manually or by sending data over RS-232 Interface

Storing PLU

Press Zero key to ensure display zero.

Tare and unit weight to be stored can be either taken from a weighing in process or by enter manually.

- Press PLU display will be shown

P lu	- -	

- Press numeric key 2 and 7

P lu	27	

- Press Pst
  Currently stored text will appear
  The first digit is flashing, it can
  Change by using numeric keys

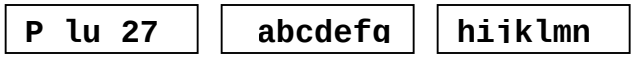
P lu 27	Apple	

- If necessary, delete additional text

P lu 27	-	

By pressing CE

- Continue to enter text until description is complete (max: 12 characters)



- Use • key, number selection to left.
- Use M+ key, number selection to right.
- Press and hold two seconds 0-" key, space to right.
- Tare values can be saved when in the admitted taring range(default >2% of capacity)

Entering Description Manually

To set the description, press the numeric button and keep it pressed until the desired letter is displayed. The characters are according to key board.

1	- / \	
2	A B C	
3	D E F	
4	G H I	
5	J K L	
6	M N O	
7	P Q R S	
8	T U V	
9	W X Y Z	
0	_ [ ]	_ (space)

The characters and the displayed symbols are

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	-	/	\	(	)
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z		'	'	[	]

1	2	3	4	5	6	7	8	9	0
1	2	3	4	5	6	7	8	9	0

Note that this method is only used where alpha-numeric data is permitted. This is used for the Description field and the User ID number, Scale ID number in the parameters section.

Recalling PLU

To recall the PLU values the user should first select either local or remote scale the tare value stored will be specific to the scale selected.

- Press PLU display will be shown

P lu	- -	

- Press numeric key 2 and 7

P lu	27	

- Press PLU

P lu 27	Abcdefg	hiikllm

- **PLU's can be stored and recalled using RS-232 Interface.**

5. PARAMETERS

Enter into the Parameter

- Turn on the scale, press Pst during that start up.

Display will be shown

```
F1 off
```

Select the Menu Block

- Press U.Wt Units key, it can choose menu block one by one.

Enter the Selected Menu

- Press Tare key, it can confirm which will be shown displayed.

Select the Sub- Menu

- Press U.Wt Units key, it can choose the sub-menu block one by one.

Return to Weighing Mode

- Press Zero key, it can escape from the menu and exit to weighing mode.

Parameter Setting

Menu	Sub Menu			Description
Fi off	Beep	Beep off		Beeper is turned off
		Beep On in		Beeper is turned on, will be sounded with in the check weighing limits
		Beep On out		Beeper will be sounded above the check weighing limits
	El	Lite aut		Backlight will be turn on automatically, when loaded or key is pressed
		Lite off		Backlight is turned off
		Lite on		Back light is turned on
	unit	Kg / lb		Weighing Unit kg and lb are enable
		Kilo		Weighing Unit kg only
		lb		Weighing Unit lb only
	Off	0		Auto off function disable
		3		Scale will be off three minutes later
		5		Scale will be off five minutes later
		15		Scale will be off 15 minutes later
		3 0		Scale will be off 30 minutes later
F2 prt	P mode	Print	Au on	Data out put / accumulation after unloading the balance
			Au off	Data out put / accumulation after by pressing M+
		P cont		RS 232 data output continuously
		Ser re		RS 232 data output weight only
	P baud	B 600		Set the required baud
		B 1200		
		B 2400		
		B 4800		
		B 9600		
	parity	8 n 1		8 bits, no parity
		7 e 1		7 bits, even parity
		7 o 1		7 bits, no parity
	P type	Tpup		Standard printer setting
		Lp50		Tscale Label Printer
U id	U id	abcdef		Shows the current User ID (max 6 characters)
Sc id	Sc id	abcdef		Shows the current Scale ID (max 6 characters)
Tech				Technical parameter password protected

6. RS- 232 OUT PUT

The QHD Series of scales can be ordered with an option RS-232 output.

Specifications:

RS-232 output of weighing data
ASCII code
4800 Baud
8 data bits
No Parity

Connector: 9 pin socket

Pin 2 Output
Pin 3 Input
Pin 5 Signal Ground

Sample of out put

```
LOCAL SCALE
ID: 123ABC
NAME:Text
12.456 kg NET
1.1234 g U.W.
11 PCS
TOTAL
- - - - - - - - - - - -
49.824 kg TW
44 TPC
4 No.
```

Control Commands

The scale can be controlled with following commands.

Basic Commands:

PLUxx	Select PLU from scale memory
T	Tare current weight value
T123.456	Numeric tare value
Z	Zero
P	Print
M+	Store and print current results
MR	Recall memory values to scale display
MC	Clear memory
U123.456	Store unit weight of 123.456 kg / lb
S123	Enter sample size of parts 123 . Same as pressing Smpl
SL	Select local scale to be used
SR	Select remote scale to be used

Printing Commands:

\L	Scale: Local or Remote
\I	User ID number
\S	Scale ID number
\N	Net weight
\G	Gross Weight
\T	Tare weight
\U	Unit weight
\P	Count
\C	Total Count
\W	Total Weight
\M	Number of items stored in memory
\B	A blank / space line

PLU entry using RS 232 interface

This will allow the scale data to be sent from a PC program as well as from the keypad. The most common PLUs can be stored and recalled from the scale memory. Other PLU data can be stored on a PC, then the text data, unit weight and tare data can be sent from the PC to PLU00. This can then be used and over written each operation.

OPERATION:

- Send tare data to set any tare value to be stored with PLU. i.e. “T0.150” <CR>. If no tare is needed then you may send T0 to delete any present tare data.
- Send the unit weight to be stored with PLU. ie. “U12.3456” <CR>

- Send PLU text data to be stored with current TARE and U/W values. ie. “SPLU01,Parts” <CR>

7. CALIBRATION

- Turn on the scale and press Zero during the self test.

  `Pi n`

- Use the numeric key to enter password

  Default password **0000**

  `Pi n` `- - - -`

  Press Tare to confirm

- Display will be shown

  `tech` `Local`

  Select Local or Remote scale by pressing Local Rem

  `remote`

  Press Tare to confirm.

- Display will be shown

  `tech` `unit`

  If necessary, press U.Wt Units to select the weighing unit **kg** or **lb.**

  Press Tare to confirm.

- Display will be shown

  `unload`

  Ensure the platform is empty and wait for stable indicator.

  Press Tare to confirm.

- Display will be shown

  `sel` `000000`

  Set weight value will be required

  Enter the value by using numeric keys

  `000005`

  Press Tare to confirm.

- Display will be shown

  `Load`

  Place the calibration weight on the platform and wait few seconds for display stable.

  Press Tare to confirm.

- After the calibration scale will start a self test, remove the weight during that time and display will return to weighing mode.

- Incase display will show any error message or incorrect measurement, repeat the calibration again.

8. TECHNICAL PARAMETER

Enter into the parameter by pressing (Pst) during the self test	**F1 off**
Press (U.Wt. Units) until **tech** is displayed	**tech**
Press (Tare) to confirm, display will be shown	**Pi n**
Enter the password. Default password is **0000** and press (Tare) to confirm	**Pi n - - - -**
Select the scale by pressing (Local Rem) , which should be configured and press (Tare) to confirm	**Tech local** **remote**
Use the (U.Wt. Units) key to select the weighing unit **kg / lb** and press (Tare) to confirm	**Tech unit** **cnt**
Use the (U.Wt. Units) key to scroll to select individual menu. Confirm selected menu by pressing (Tare) Press (Zero) key, escape from the menu and exit to weighing mode	

Technical Parameter	Sub Menu		Description
Cnt			Internal counts
Cap	Capacity (For Remote Scale Only)		
	desc	**0**	Set remote scale decimal point
		0.0	
		0.00	
		0.000	
	Sel	**001000**	Set remote scale capacity by using numeric keys
	I nc	**1**	Set remote scale division
		2	
		5	
		10	
		20	
		50	
Di v	**I nc 5**		Set division
	I nc 10		
	I nc 20		
	I nc 50		
A 2t	**Azn 0 .5d**		Automatic zero tracking
	Azn 1d		
	Azn 2d		
	Azn 4d		
0 Auto	**0 auto 0**		Zero setting range, after switching on the scales to zero
	0 auto 2		
	0 auto 5		
	0 auto 10		
	0 auto 20		
0 manl	**0 manl 0**		Zero setting range, the display is set to zero by pressing Zero
	0 manl 2		
	0 manl 4		
	0 manl 10		
	0 manl 50		
	0 manl 100		
Pi n	**Pi n 1**		Enter new password
	Pi n 2		Re enter new password
Gra	**9. 673 00**		Set local gravity

9. ERROR DISPLAY

Error Message	Description	Solution
-----	Maximum load exceeded	Unload or reduce weight
Err 1	Incorrect date	Enter the date by using format “yy;mm:dd”
Err 2	Incorrect time	Enter the time by using format “hh:mm:ss”
Err 4	Zero setting error	Zero setting range exceeded due to switching on.(4%max) Make sure platform empty.
Err 5	Key board error	Check the keys and connecter.
Err 6	A/D value out of range	Make sure platform empty and check the pan is installed proper. Check the load cell connectors.
Err 9	Unstable Reading	Check any air variation, vibration, RF noise and touching some where. Check the load cell and connecters.
Err 17	Tare out of range	Remove the load and restart scale again.
--ol--	Over range	Remove the load. Re calibrate
Fai l h / **fai l l**	Calibration Error	Re calibrate
Err p	Printer error	Check the printer and settings
Ba lo / **lo ba**	Battery low	Re charge battery, check the voltages.

10. TROUBLE SHOOTING

No Display:

- Mains power is turned off or power supply not plugged proper.
- Power supply faulty.
- Internal Battery is not charged.
- Check On/OFF switch is turned on and faulty or not.
- Check the PCB power connecters and cable.

Display is Blank after the self test / Err stuck:

- Unstable weight.
- Check the platform is installed correctly.
- Try again to turning on.
- Check the load cell is not touching any where.
- Load cell is damaged. Check the load cell connections and all.

OL or(-------) appear the display:

- Maximum capacity exceeded.
- Power supply faulty. Check all power cables and connecters.
- Calibrate again with correct calibration weights.
- Load cell damaged. Check load cell connections.

(------) or Lo:

- Weight is below permissible limit.
- Check the pan installed correctly.
- Calibrate again with correct calibration weights.
- Power Supply faulty. Check all power cables and connecters.
- Load cell damaged. Check load cell connections and connecters.
- Try to turn on again.

Unstable display:

- Check the pan is seated proper and touching some where
- Check any vibrations, noises, sudden temperature changes.
- Check power supply.

- Check battery and connect to charging.
- Check the load weight is seated properly.
- Check the load cell connections and connecters.

Incorrect value:

- Calibration error.
- Calibrate again with exact calibration mass weights.
- Check the weight sample is lying proper and avoids touching the cover or surface.
- Check power supply and battery.
- Check load cell connections and connectors.

Can not use scale full capacity:

- Before weighing make sure zero indication is showing and scale is empty.
- Check the weighing mode.
- Check the load cell is fitted proper and touching housing or hitting somewhere.
- Calibrate again with exact calibration mass weights.
- Load cell damaged. Check load cell connections and connectors.
- Main PCB problem.

Battery not charging:

- Mains voltage problem. Check the power supply voltage and adaptor voltage.
- Charging circuit failure.
- Battery failure, check the battery connections

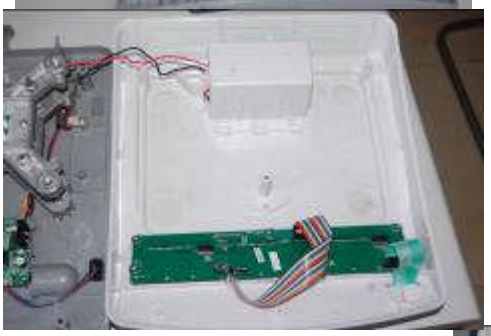
11. MAINTENANCE

Disconnect the power before cleaning.
Use a cloth with mild suds and light cleaning agents. Make sure that fluid is not able to get into the device. Use a clean and soft cloth for remove.

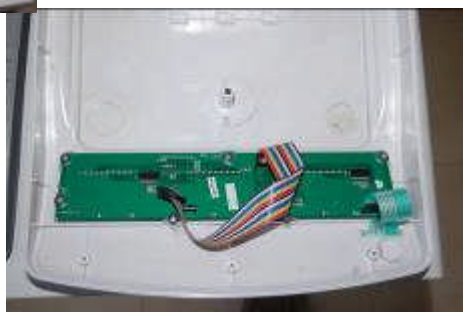
This devise does not require any routine maintenance. It may be necessary to perform periodic checks of the calibration of the scale due to mechanical reasons. The frequency of the checks depends on the conditions to use.

CHANGE PARTS

1. Replace main board



- Remove adaptor pin from the jack.
- Remove the pan.
- Remove the five screws from the bottom of housing, securing the front and back halves of the cover.
- Disconnect the power connector, display connector and load cell cable.
- Disconnect the ground cable from the main PCB
- Remove the main PCB from the back cover.
- Carefully remove the main PCB and keep on a protective place.
- Install a new main PCB.
- Connect load cell cable, display connector, ground cable and power connecter.
- Close the top cover to the bottom cover with the five screws.



2. Replace display board

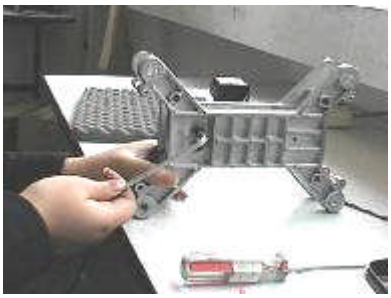
- Remove the top cover
- Remove the seven screws from the display board and clean the glue.
- Disconnect the key board connecter and main PCB connecter from the display board.
- Remove the display board.
- Install a new display board.
- Connect the key board connecter and main PCB connecter.

- Turn on the power and check the working condition. Then, turn off the power.
- Fix the seven screws and apply glue.
- Close the top cover.

3. Replace load cell

- Open the top cover.
- If necessary remove the PCB's for avoid damage.
- Disconnect load cell connections from the PCB.
- Remove the four foots from the bottom cover.
- Remove the four screws from the upper bracket.

- Remove the bracket
  the cover.
  the table.
  screws from the top
  by using 5mm allen
  separate from the
  cell.
- with load cell from
- Bracket set place on
- Remove the allen and bottom brackets key.
- Load cell will get bracket.
- Install the new load



- Fix the brackets proper.
- Fix whole bracket to the bottom cover by using four screws.
- Fix the four foots to the bottom cover.
- Connect the load cell connections to the main PCB.
- Fix all PCB's and cables proper.
- Close the top cover.

4. Replace battery

- Remove the pan and dust cover.
- Open the battery cover from the top cover.

- Take it out the battery from in side the housing.
- Remove the connecters from the battery terminals.

- Change the new battery.
- Connect the connecters to the battery terminals.
- Battery, place it proper to inside the housing.
- Close the battery cover.
- Fix the dust cover and pan.

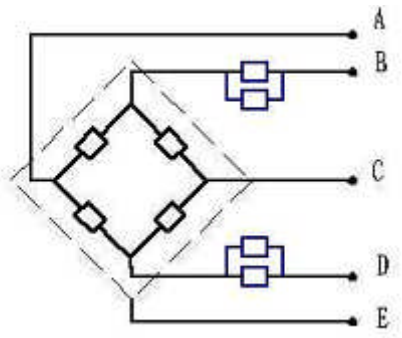
Checking Components

- Remove the pan
- Open the housing.
- Make sure components all are clean.
- Check the connectors are connected proper.
- Check the keyboard.
- Check the display board and main PCB.
- Check the load cell
- Check the battery
- If any component damaged replace it.
- Close the housing.
- Install the pan and check its lying proper there.

Checking Load cell

- Remove the top cover from the scale.
- Remove power connecter from the main board.
- Make sure load cell cable connections are proper and no insulation material is touching the terminal contacts.
- Check load cell bridge resistance.

Load Cell Connections:



Signal + Green
Supply + Red

Signal - White

Supply - Black

Shield

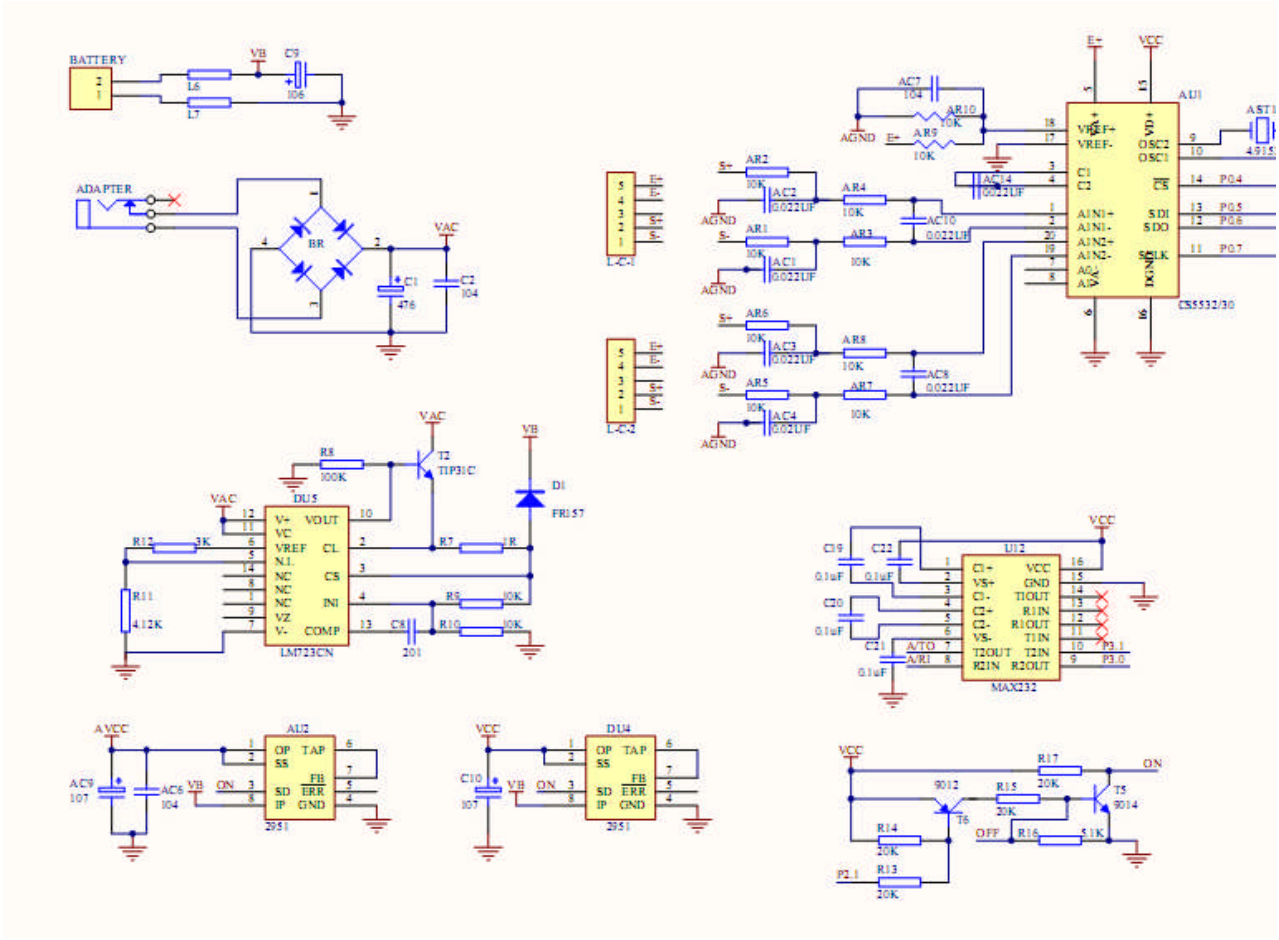
Points	Resistance
Red (+E) to Black (-E)	406 ohms ± 6 ohms
Green (+S) to White (-S)	350 ohms ± 3 ohms

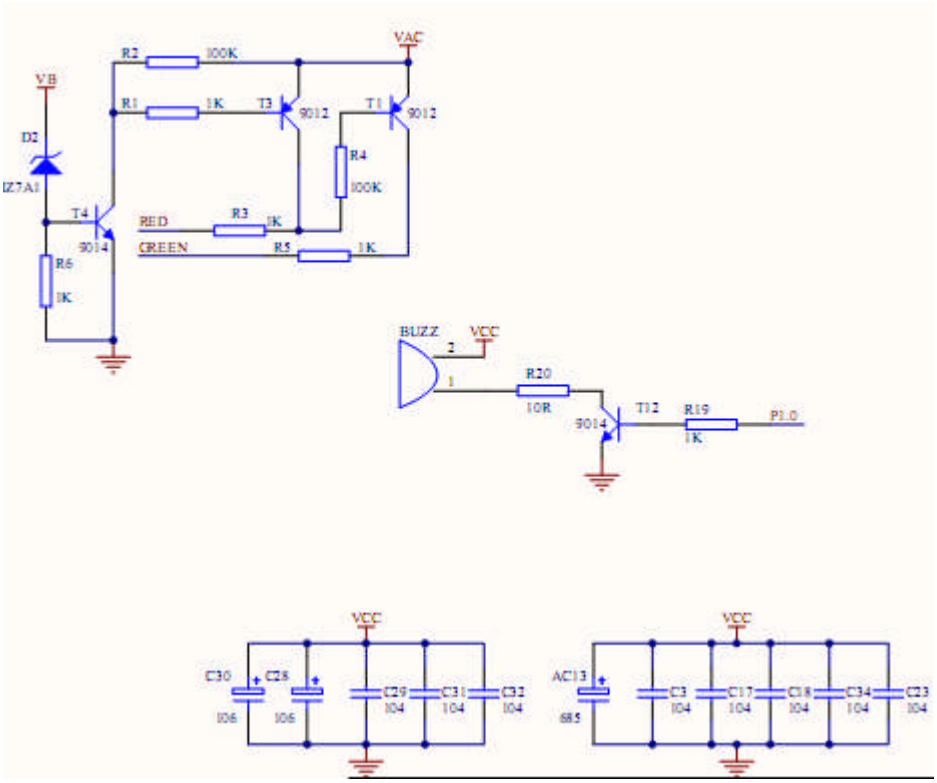
- If proper excitation voltage is reaching the load cell, check the output signal.
- If load cell has an unusual signal, replace that load cell.

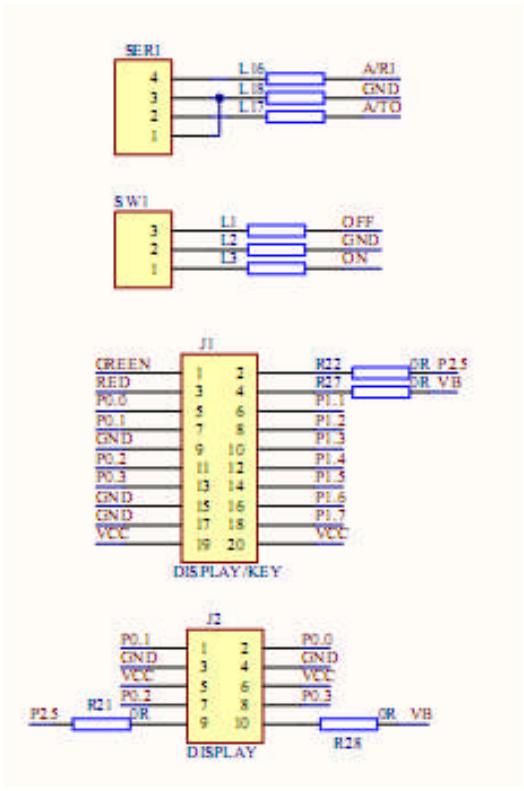
Checking Voltages

- Using a multimeter, check the mains voltage.
- Check the adaptor is outputting a voltage 9 VDC.
- Check PCB input voltage 9VDC.
- Check battery voltage of at least 6 VDC.

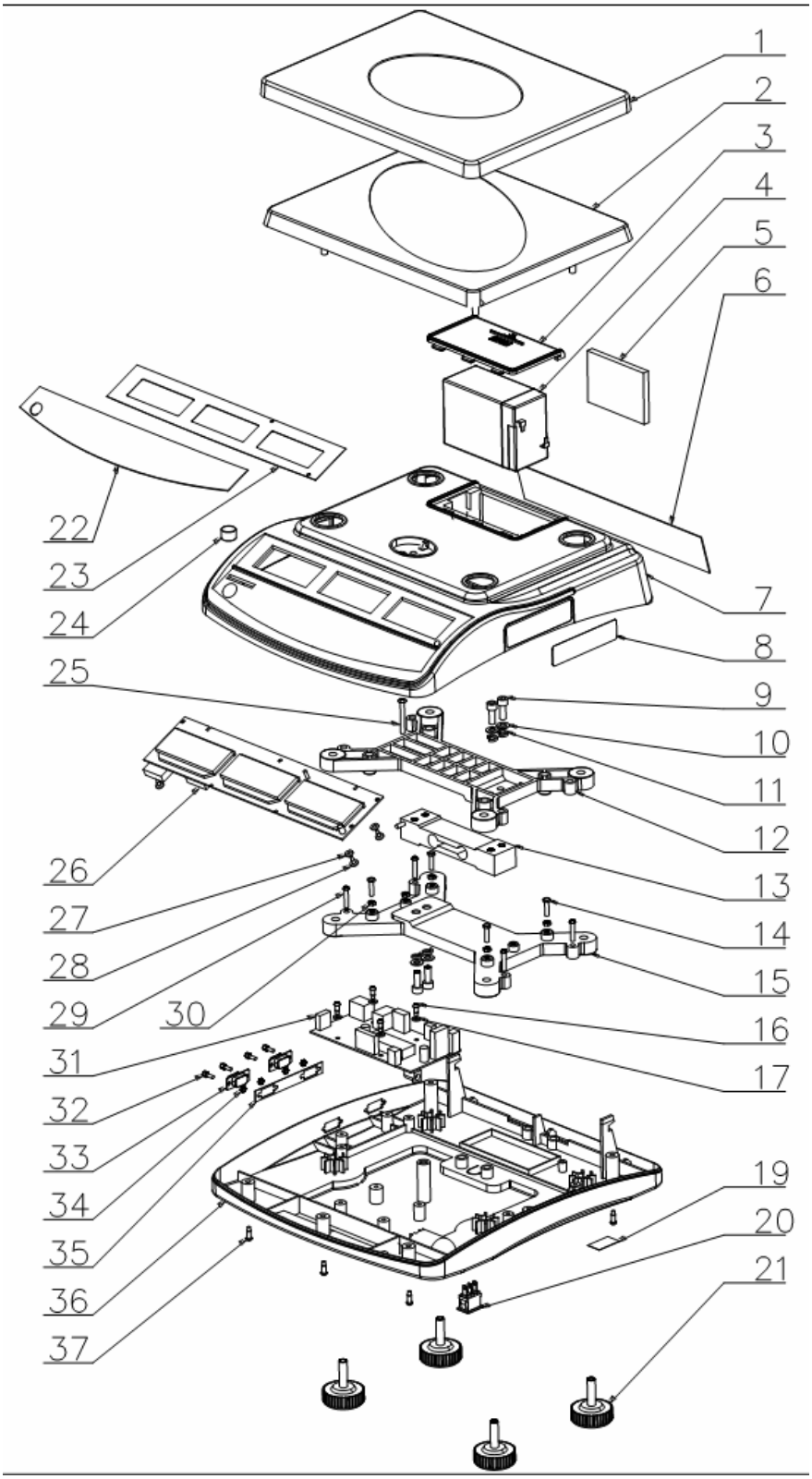
12. CIRCUIT DIAGRAM




VAC
R2
100K
VB
R1
1K
T3
9012
T1
9012
D2
IZ7A1
R4
100K
T4
9014
RED
R3
1K
GREEN
R5
1K
R6
1K
BUZZ
VCC
2
1
R20
10R
T12
9014
R19
1K
P1.0
VCC
C30
C28
C29
C31
C32
104
104
104
VCC
AC13
C3
C17
C18
C34
C23
104
104
104
104
104


SERI
L16
L15
L17
A/RI
GND
A/TO
SW1
L1
L2
L3
OFF
GND
ON
J1
GREEN
RED
P0.0
P0.1
GND
P0.2
P0.3
GND
GND
VCC
R22
R27
0R P2.5
0R VB
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
VCC
DISPLAY/KEY
J2
P0.1
GND
VCC
P0.2
P0.0
GND
VCC
P0.3
P2.5
R21
0R
0R VB
R28
DISPLAY

13. DRAWING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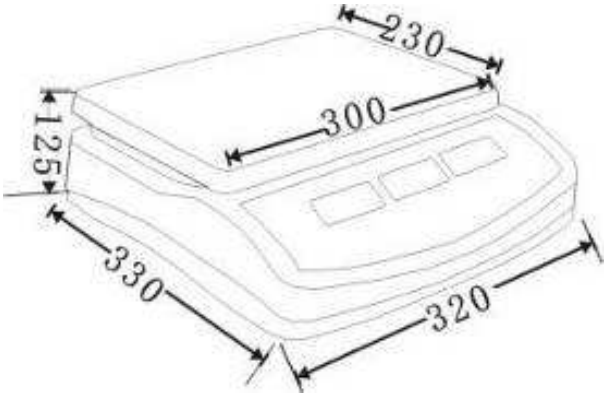
Parts List

No	Parts Name	Qty	Material	Spec
1	Pan	1	SST	230mmx300mm
2	Pan	1	ABS	230mmx300mm
3	Battery cover	1	ABS	
4	Battery	1	Lead Acid	6V/4Ah
5	Foam	1	CR	
6	Rear Overlay	1		
7	Top Cover	1	ABS	
8	Name Plate	1		
9	Internal Allen Screw	4		M6x16, 8.8
10	Washer (M6)	4	65Mn	200-300HV
11	Spring Washer(M6)	4		HRC42-50
12	Load cell upper bracket	1	Aluminum	
13	Load cell	1	Aluminum Alloy	
14	Star (+) Screw	4	20Mn	M4x16
15	Load cell lower bracket	1	Aluminum	
16	Self thread Screw	4	S18C	4x10
17	Insulative Washer	4	EDPM	8x3.1x1.2t
18	Power Socket	1		
19	Power Socket Spacer	1	PC	
20	Power Switch	1		
21	Foot	4	PVC	
22	Key board	1		
23	Front display overlay	1		
24	Level bubble	1		14.7mm
25	Screw	1		M4x35
26	Front Display PCBA	1		
27	Insulative Washer	5	EDPM	8x3.1x1.2t
28	Star (+) Self thread screw	5	20Mn	M3x20
29	Star (+) Self thread screw	5	20Mn	M4x20
30	Hexagon Nut	4		Zn Coating
31	Main PCBA	1		
32	Screw for D connector	4		
33	D type connector	2		
34	Hexagon nut for D connector	4		
35	Overlay	1		
36	Bottom Cover	1		ABS
37	Self thread screw	5	20Mn	4x12

14. SPECIFICATIONS

DIMENSION



Specification

MODEL	QHD+ 3	QHD+ 6	QHD+ 15	QHD+ 30
Maximum Capacity	3000 g	6000 g	15 kg	30 kg
Readability	0.05 g	0.1 g	0.2 g	0.5 g
Tare Range	-3 kg	-6 kg	-10 kg	-30 kg
Repeatability(Std Dev)	0.05 g	0.1 g	0.2 g	0.5 g
Linearity ±	0.1 g	0.2 g	0.5 g	1 g
Units of Measure	lb, kg			
Interface	Bi-directional RS-232 Interface			
Stabilization Time	2 Seconds			
Operating Temperature	0°C - 40°C (32°F - 104°F)			
Power supply	AC Adaptor 9 V/800 mA / Battery 6V4AH			
Calibration	Automatic external			
Display	3 x 6 digits LCD digital display with white LED back light			
Housing Indicator	ABS Plastic, Stainless Steel pan			
Pan size	225 x 300mm / 8.9 x 11.8”			
Overall dimensions	320 x 340 x 125mm / 12.6 x 13.4 x 4.9”			
Net weight	4.3kg / 9.5lb			
Applications	Counting Scale			
Internal Resolution	Up to60000			

Specification for Remote Scale

Excitation voltage	5 VDC
Signal range	0-20 mV(allows 3 mV/V LC with 5mv zero offset)
Zero range	0-5 mV
Sensitivity	0.02 µV/internal ADC count or better
Internal ADC counts	500,000 maximum at 10 mV input
Load	87 ohm minimum, 4 X 350 ohm load cells
Connection	4 wire connection to load cells plus shield
Maximum cable length	6 meters
Termination	9 pin d-subminiature plug on scale

Specification for Local Scale Load Cell

Model No	**C2X1**
Rated Capacity	6~50 (kg)
Rated Out put	2.0 mV/V±0.2 mV/V
Excitation Voltage	20 VDC
IP Level	IP64
Material	Aluminum Alloy
Cable	Φ 8.2 four core shield
Input Resistance	420Ω ±30Ω
Out put Resistance	350 Ω ± 5 Ω
Temperature Range	-10℃ - 50℃
Safe overload	150 %R.C
Ultimate overload	200 %R.C
Repeatability	0.02 %R.O
Creep	0.02 %R.O/ 20min
Zero Balance	± 0.1 mV/V

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When you invest in weighing equipment from Intelligent Weighing Technology, you're really buying peace of mind.
Quality - Scales and balances solidly built from the ground up with superior engineering and components for exacting results.
Value - From bench scales to analytical balances, weighing equipment priced for real-world business applications, with superior service and support.
Experience - Expert advice to help you choose just the right product for your application.

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