TWP series

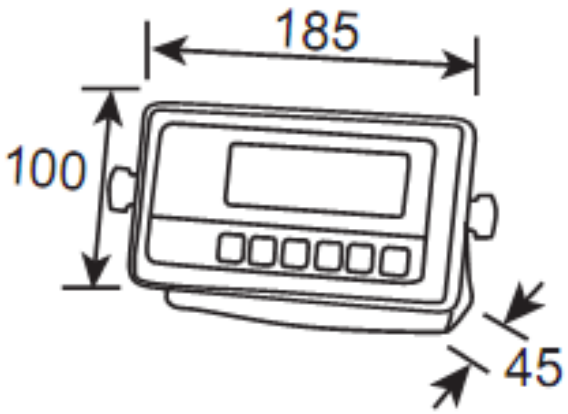
Weighing Indicator

Service Manual

Totalcomp
Scales & Components
the weigh you want... today!

CONTENTS

1. SPECIFICATIONS



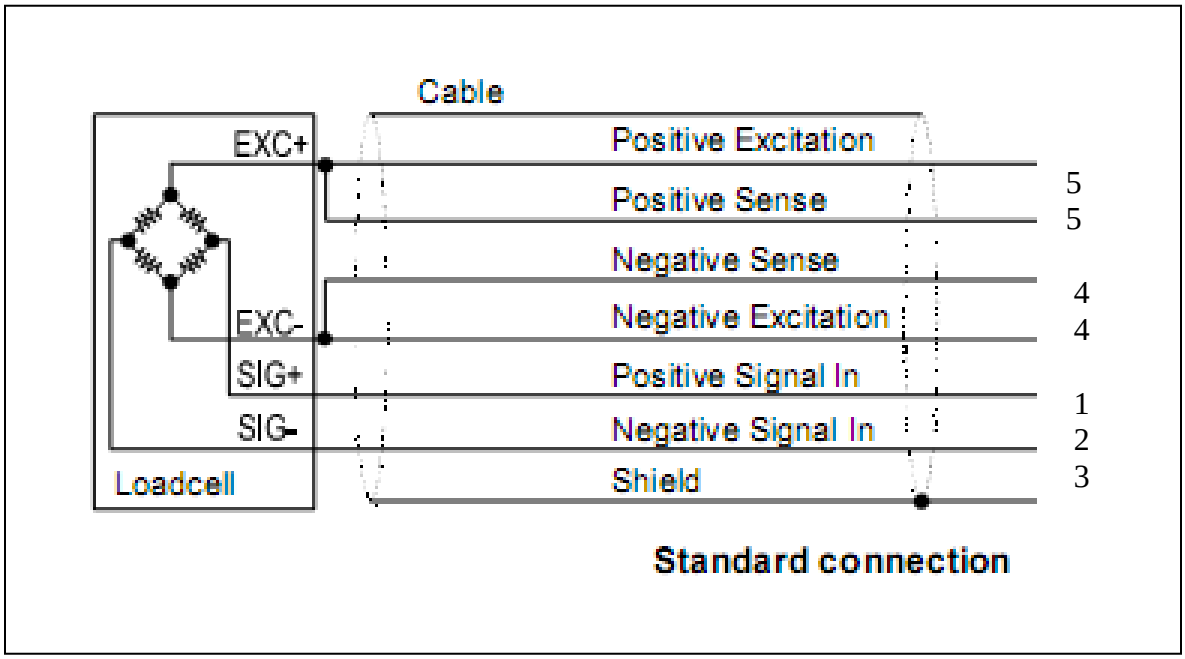
Model	**TWP**
Resolution	1/30,000
Indicator housing	ABS Plastic
Stabilisation Time	1 Seconds typical
Operating Temperature	0°C ~ +40°C / 32°F - 104°F
Power supply (external)	AC Adaptor (12V/500mA) / Ni-MH battery (1.2V/1200mAh x 6)
Calibration	Automatic External
Display	6 digits 22mm LCD display, attached backlight
Interface	RS-232 Output Optional
Zero range	0mV~5mV
Signal input range	0~15mV
ADC	Sigma delta
Internal counts	600,000
ADC update	Max 60 times /second
Load cell drive voltage	Max 5V/150mA

2. INSTALLATION AND PRECAUTION

- The weighing indicator is a precision electronic instrument. Handle it care fully.
- Don't install the scale in direct sunlight.
- Avoid sudden temperature changes, vibration, wind and water.
- Avoid sudden and jerky acceleration of the load.
- Avoid heavy RF noise.
- Keep the indicator clean.

Load Cell Connection

- Connect the load cell cables to the terminal as shown below**.**
- The load cell drive voltage is 5 VDC, between positive excitation and negative excitation.



Power Operation

Power is supplied through the external mains adaptor (9 VDC / 800mA). The mains supply voltage should be the same as local voltage.

Battery Operation

- To charge the battery insert the adaptor pin to jack. Adaptor simply plug into the mains power. The scale no needs to be turned on.
- The battery should be charged at least 12 hours for full capacity.
- 10 hours before switching off automatically for protect the battery.
- Do not use any other type of power adaptor than the one supplied with the TWP.
- Verify that the AC power socket outlet is properly protected.
- The symbol status of the battery

Battery voltage has dropped 

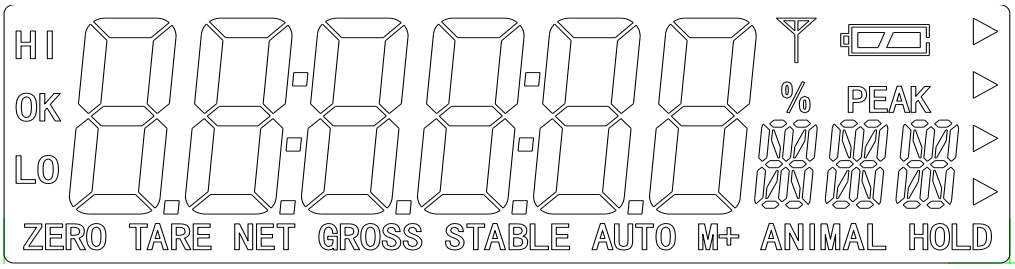
Low voltage 

Fully charged 

3. NAME AND FUNCTIONS

Overall View

Display



DISPLAY	FUNCTION
HI **OK** **LOW**	Check weighing
ZERO	Indicator for Zero display
TARE	Indicator for Tare display
GROSS	Indicator for Gross weight
NET	Indicator for Net weight
STABLE	Indicator for Display stability
AUTO	Indicator for Auto Accumulation
M+	Indicator for Accumulation
ANIMAL	Indicator for Animal Weighing Mode
HOLD	Indicator for Hold/ Lock
	Indicator for Charging status of battery.

KEY	FUNCTION
	Turn the power On/ Off
	Used to reset to Zero. In setting mode can use to confirm entry
	Used to recording tare values and change the value from gross value to net value. Insetting mode can use to increase the value and scroll forward in menu.
	When the scale has been tare and display is in gross or net mode. When using the settings mode, can use to move active digits right.
	For print the results, to the PC or printer using the optional RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not automatic. When using the settings mode, can use to move active digits left.
	Switch to unit weight. In setting mode, escape back to menu/ weighing mode.

4. OPERATIONS

Initial Start – Up:

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

1. **Power ON/OFF:**

   Switch on the balance by pressing ON/OFF key.
   The display is switched on and the test is started and if want to switched off, press again the key.

2. **Zero**

   Environmental conditions can lead to the balance exactly zero in spite of the platform 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.

3. **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 platform.
- Press TARE key. Zero is displayed, and tare is subtracted.
- Remove weight on the platform. Tare weight is displayed. It can set only one tare value. It can display with a minus value.
- Press G/N to change between gross weight and net weight.
- To clear the tare value, remove the load and press TARE key. Zero is displayed, tare weight is cleared.

4. **Sample weighing**

   - Place goods to be weighed on the platform.
   - Wait few seconds for stability display.
   - Read the result.
   - Avoid overloading. When display appears **"ol"** reduce the load or unload.

5. Check Weighing

It can set an upper or lower limit when weighing with the limits range.
During the limit controls dividing the unit will indicate whether a value
upper or lower limits with an alarm sound . For details see the parameter F3 oFF.

- **Check mode 1**: No beep sound in the limits. Function turned off.
- **Check mode 2:** When the weight is between the limits. OK will shown and beep will be sounded.
- **Check mode 3:** When the weight is out of the limits, **t**he beep will sound and OK will shown.

6. Enter to Menu

In the weighing mode, press UNIT and PRINT M+ together.

Display will be appear `F0 H-L`

7. Set limits

Press ZERO to enter the function.

Press TARE key to select the limit.

Display will appear `Set Lo`

Press ZERO key to enter, press G/N key to move active digits.

Press TARE to change the value. After enter the value press ZERO to sure.

Press UNIT to escape.

8. Set check weighing mode.

After entering the settings mode,

Press TARE until display will be appear `F3 oFF`

Press ZERO key to enter, press TARE until display show `bEEP`

Press ZERO key to enter, press

Check mode 1 bP 1

Check mode 2 bP 2

Check mode 3 bP 3

Select desired setting by pressing TARE and press ZERO key to confirm, press UNIT to escape.

Note: The load weight must greater than 20 scale divisions for the check weighing operations.

To disable the check weighing function, enter zero into both limits.

9. Accumulation

Accumulation

- Place the goods on the platform to be weigh

  Wait few seconds for display stable, then press PRINT M+. The value will be saved and printed (if the printer is connected).

  Display will be appear ACC 1 this display will appear two seconds only.

  Remove the load and wait few seconds for display return to zero.

- Place the second goods on the platform.

  Wait few seconds for display stable. Then press PRINT M+ . The value will be saved.

  Followed by the total number of weight will be displayed ACC 2

  It can continue the process until the maximum capacity or value.

  Note: When you change the weighing unit this saved values will be clear.

Accumulated Total

Manually, the scale can be set to accumulation by pressing PRINT M+ , when an optional printer is connected. See details in **F4 Prt.**

Memory Recall

When display of Zero, you can see the number of weighing and total weight by pressing PRINT M+ , display will be shown for two seconds.

Delete the Memory

When display of Zero, you can see the number of weighing and total weight by pressing PRINT M+ , display will be shown for two seconds. Press PRINT M+ during this display. The memory data are deleted and display will be shown

ACC 0

10. Accumulation Automatically

In this function the individual weighing values are automatically added into the memory. No need to press any keys.
For this function, set to parameter **F4 Prt and** select **P AutO.**

After select this function, display indicator AUTO will be shown.

- Place the goods on the platform to be weighed
  After the stable, will be follow beep sound twice.
- Unload the goods, the weighing value will be saved automatically and will be follow beep sound once.

It can continue the process until the maximum capacity or value.

11. Animal Weighing

TWP can use for vibrate loads.
For this function, set to parameter **P4 CHk** to **ModE 2**

After select this function, display indicator ANIMAL will be shown.

- Bring the load on to the platform.
- When the load few seconds get stable, the reading will be locked for few seconds and will be follow beep.
- It can add or remove loads also update the weighing locked values.

12. Peak Hold

TWP can operate peak hold function, maximum reading will be hold and will update automatically when add goods.

For this function, select parameter **P4 CHk** to **ModE 4**

In the normal weighing mode press TARE and ZERO key together to turn on Peak hold operations, display will be indicate HOLD.

If want to turn off peak function, press TARE and ZERO key together again

5. PARAMETER

KEYS OPERATIONS INTO THE MENU

Enter the menu

- In weighing mode, press UNIT key and PRINT M+ key together.

Select the menu

- Press TARE , it can change the menu block one by one.
- Using increase the digit.

Enter the selected menu

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

Change the digit

- Press G / N , it can change the active digit.

Return to weighing mode

- Press UNIT , exit from the menu.

PARAMETER BLOCK

Menu	Sub-Menu	Description	
F0 H-L Weighing with set limits	SET Lo	Lower limit value	
	SET Hi	Upper limit value.	
F1 toL	to CLr	Clear the accumulation memory with out printout	
	to P-C	Print the total accumulation memory and clear the total memory	
	to Prt	Print the total accumulation and keep all the memory.	
F2 Unt	G	Weighing units	
	Lb		
	Oz		
	Tj		
	hJ		
F3 off	Bl	El on	Display of back light on
		El au	Display of back light on automatically
		El off	Display of back light off
	beep	Bp 1	Beep sound off during the check weighing
		Bp 2	Beeper will be sounded with in the check weighing limits
		Bp 3	Beeper will be sounded above the check weighing limits
P4 prt	**RS 232 mode**		
	P prt	By pressing PRINT M+ , weighing value will be added to the memory and print the print out	
	P cont	Send data continuous	
	Seire	Also send data continuous	
	Ask	Bi- direction , through PC Commands R= Send, T= Tare, Z= Zero	
	P cnt 2	No documented	
	P stab	Send data of stable weighing values	
	P auto	Automatic accumulation. Individual weighing values are automatically added	
	Set BAUD rate After setting the RS 232 mode, display will be shown current baud rate **b XXX**. Avail able baud rate: **b600, b1200, b2400,**		

	b4800 and **b9600** If necessary change the baud rate by pressing TARE and enter by pressing ZERO		
	Set print out format If enter settings **p prt, p auto, p cont** and connected optional printer		
	Pr X	Print format	Only for **p prt, p auto** format
	Lab X	Print format	
	Cont 1	Only for **p cont** only N.A	
	Cont 2		
	Cont 3		
	Set printer type		
	Ty-tp	Ticket printer	
	Ty 711	N.A	
	Lp 50	Label printer	
	When using printer, it can select accumulation On /Off		
	Acc on	Printer will be print and weighing data will be save into memory	
	Acc off	Printer will be print and accumulation turn off	
prog	**pin**	Enter the programming and calibration menus by using password	

PROGRAM PARAMETERS

	Sub Menu	Description	
P1 ref	A2n 0	0.5d	Auto zero point settings
		1d	
		2d	
		4d	
	0 – auto	P1 0	Zero setting range. When the display is turn on the scale is set to zero
		P1 2	
		P1 5	
		P1 10	
		P1 20	
		P1 50	
	0 – range	P 2 2	Manually zero setting range, by pressing ZERO
		P 2 5	
		P 2 10	
		P 2 20	
		P 2 50	
		P 2 100	
	Speed	S 7.5	
		S 15	
		S 30	
		S 60	
P 2 cal	Deci	C 0	Decimal point settings
		C 0.0	
		C 0.00	
		C 0.000	
		C0.0000	
	Inc	1	Increment settings
		2	
		5	
		10	
		20	
		50	
	Cap	00000	Enter the scale capacity
	cal	Linear	Linear calibration
		nonlin	Normal calibration
P3 pro	Tri	This display will be show XXXXX. For trimming the load cells, showing primary weight. You can calculate new rate by this formula: N2=N1+N1×[(K2-K1)÷K2] N1: primary rate, N2: new rate, K1: calibrate weight, K2: display weight	
	Count	This display will show XXXXX for indicating the internal counts.	

	Reset	Factory default settings
	gra	Set the local gravity
P4 chk	**Mode 1**	Normal weighing mode. (check weighing, accumulation)
	Mode 2	Animal weighing mode. (scale can lock reading, when little unstable)
	Mode 3	This is a subtraction scale (print out “-“ weight)
	Mode 4	Peak Hold mode. (Scale can hold maximum reading)

6. RS-232 OUTPUT

TWP series scales can take out data through RS 232 output.

Specifications:

RS-232 output of weighing data
Code : ASCII
Data bits : 8 data bits
Parity : No Parity
Baud rate : 600bps to 9600bps selectable

Connecter:

Pin 2: Input
Pin 3: Out put
Pin 5: Signal Ground

Continuously output protocol

Weighing mode.
Con1:

HEADER1: ST=STABLE , US=UNSTABLE

HEADER2: NT=NET , GS=GROSS

Con2:

Header0	Header1	Header2	Header3	Weight1	Weight2	Weight3	Weight4	Weight5	Weight6	Tare1	Tare2	Tare3	Tare4	Tare5	Tare6	Terminator1	Terminator2

Header0=02H
Header1 follow decimal point
Decimal point=0, header1=22H
Decimal point=1, header1=23H
Decimal point=2, header1=24H
Decimal point=3, header1=25H
Decimal point=4, header1=26H
Header2 follow weigh status, default value=20H
If in net mode (tare value not 0), header2=header2|01H
If gross weight “-“, header2=header2|02H
If overload or gross weight “-“, header2=header2|04H
If unstable, header2=header2|08H
If weighing unit=kg, header2=header2|10H
Header3 follow weighing unit
If weighing unit=g, header3=21H
If weighing unit=oz, header3=23H
Weight1~weight6: weighing data
Tare1~tare6: tare value
Terminator1: 0DH
Terminator2: 0AH

Con3:

Header 0	Header 1	Weight 1	Weight 2	Weight 3	Weight 4	Weight 5	Weight 6	Weight 7	Unit1	Unit2	Status	Terminator1	Terminator2

Header0=01H
Header1 follow weight “+” or “-“
When weight “+”, header1=”+”, when weight “-“, header=”-“
Weight1~weight7: weight data (include decimal point)
Unit1~unit2: weight unit
Status: when stable, status=0, when unstable, status=1
Terminator1: 0DH
Terminator2: 0AH

7. CALIBRATION

- In weighing mode, press UNIT key and PRINT M+ key together.

```
Fo h-l
```

- Press TARE continuous until display will be shown.

```
prog
```

- Press ZERO , display will be shown.

```
pin
```

- Enter the password. Press G/N , UNIT and ZERO Display will be shown

```
P1 ref
```

- Press TARE , display will be shown.

```
P 2 cal
```

- Enter the function by pressing ZERO , display will be shown

```
dec
```

- Press TARE continuous until display will be shown.

```
cal
```

- Enter the function by pressing ZERO , display will be shown

```
linear
```

- Press TARE to select for normal calibration

```
Nonlin
```

Normal Calibration:

```
Nonlin
```

- Enter the function by pressing ZERO , display will be shown

```
Unload kg
```

- Make sure there are no loads on the platform and wait few seconds for stable indicator on.
- Press UNIT key to select weighing unit kg or lb

- Enter the function by pressing ZERO , display will be shown Currently adjustment

```
05.000 kg
```

- If want to change by using the keys PRINT M+ , G/N , TARE to select the required setting

- Enter the selected setting by pressing ZERO , display will be shown.

```
Load kg
```

- Load the calibration mass weight on the platform and wait few seconds for display stability.

- After the stable indicator on press ZERO , display will be shown.

```
Pass kg
```

After the calibration the display will start a self test. Remove the load from platform during the test. Display will come to weighing mode automatically.

If display will be shown any error or incorrect value, repeat the procedure again.

Linear Calibration

```
linear
```

The linearity deviation caused by the performance of the weighing unit. The digital linearization function can reduce the linearity deviation using weighing points during the zero and capacity. Up to three weighing points can be specified.

```
linear
```

- Press UNIT key to select weighing unit kg or lb

- Enter the function by pressing ZERO , display will be shown

```
Load 0 kg
```

- Make sure there are no loads on the platform and wait few seconds for stable indicator on.
- Enter the function by pressing ZERO , display will be shown

```
Load 1kg
```

- Load the first calibration mass weight on the platform (mass weight should be1/3 of the max capacity) and wait few seconds for display stability.
- Then press ZERO , display will be shown

Load 2kg

- Load the second calibration mass weight on the platform (mass weight should be2/3 of the max capacity) and wait few seconds for display stability.
- Then press ZERO ,display will be shown

Load 3 kg

- Load the third calibration mass weight on the platform (mass weight should be3/3 of the max capacity) and wait few seconds for display stability.
- Then press ZERO ,display will be shown

Pass kg

After the calibration the display will start a self test. Remove the load from platform during the test. Display will come to weighing mode automatically.

If display will be shown any error or incorrect value, repeat the procedure again.

8. MAINTENANCE

CLEANING

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

ERROR CODES

Error Message	Description	Solution
`-----`	Maximum load exceeded	Unload or reduce weight
`Err 4`	Zero setting error	Zero setting range exceeded due to switching on.(4%max) Make sure platform empty.
`Err 6`	A/D value out of the range	Make sure platform empty and check the pan is installed proper. Check the load cell connectors.

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 ok or not.
- Check the PCB power connections 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.
- Check load cell connections.
- Load cell damaged.

(------) 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 adaptor, connect to plug for 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 item if it is on the platter properly and avoid touching the surface.
- Check power supply and battery.
- Check load cell connections and connectors

Cannot use full scale capacity:

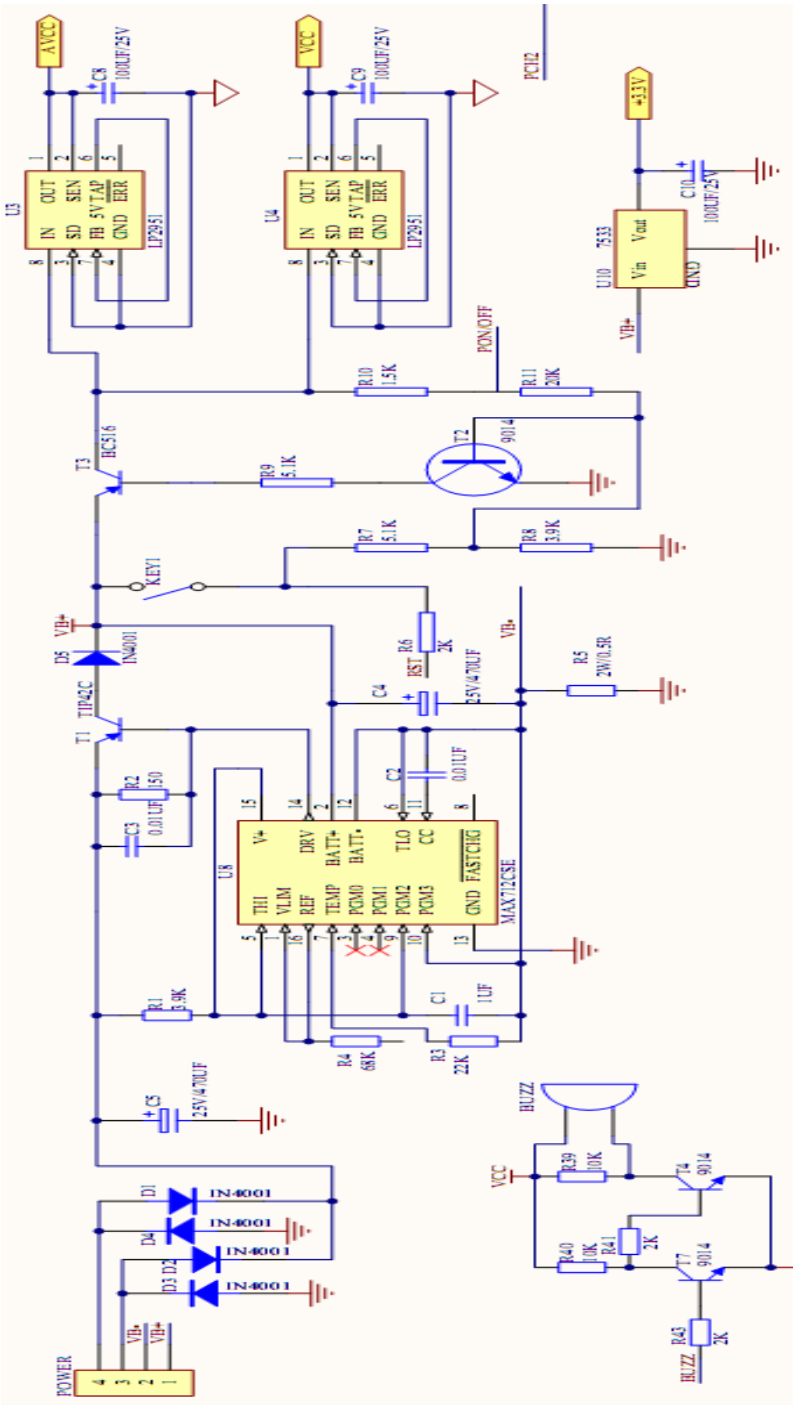
- Before weighing make sure zero indication is showing and scale is empty.
- Check the weighing mode.
- Check the load cell if it is fitting properly and avoid to touch housing or hitting scale.
- Calibrate again with exact calibration mass weights.
- Load cell damaged. Check load cell connections and connectors.
- Main Board problem.

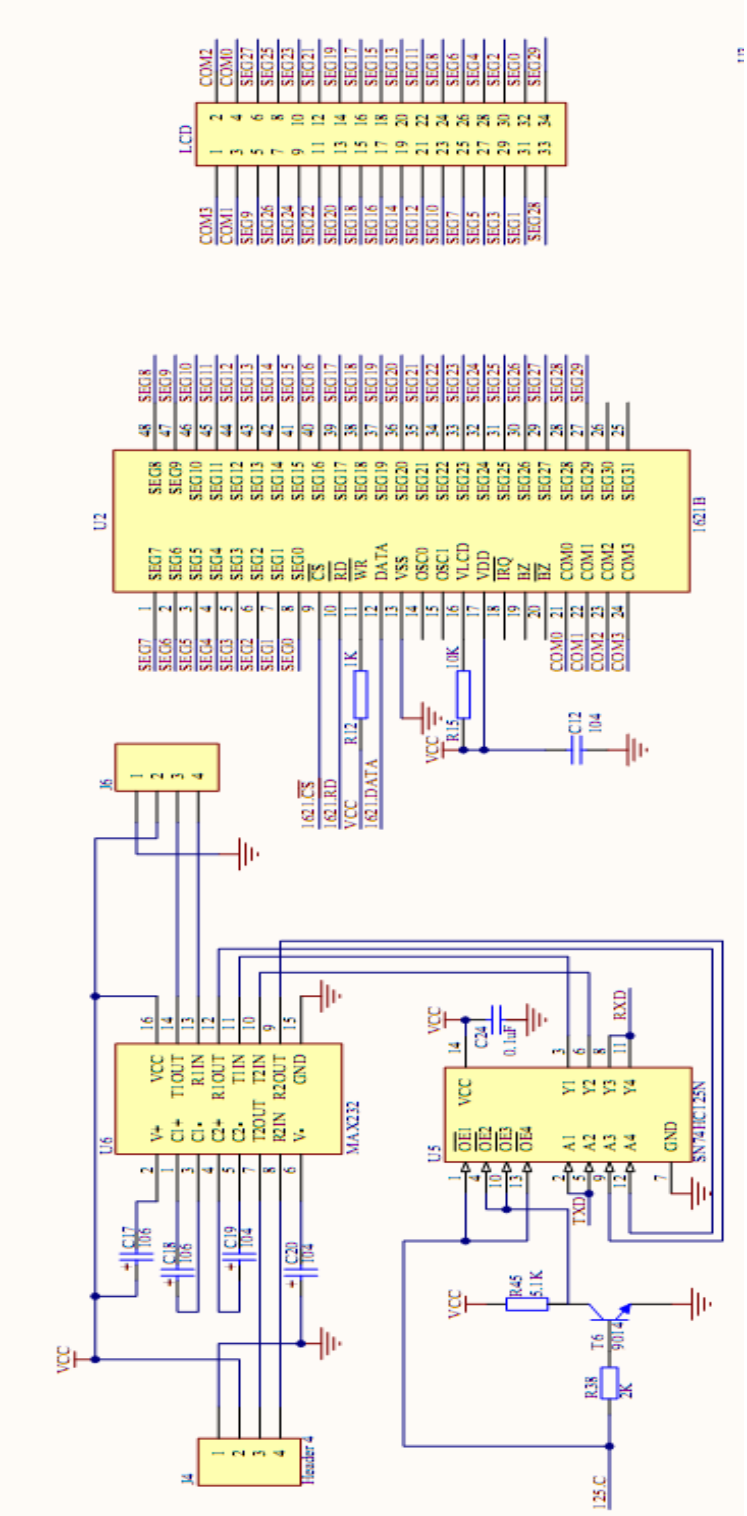
Battery not charging:

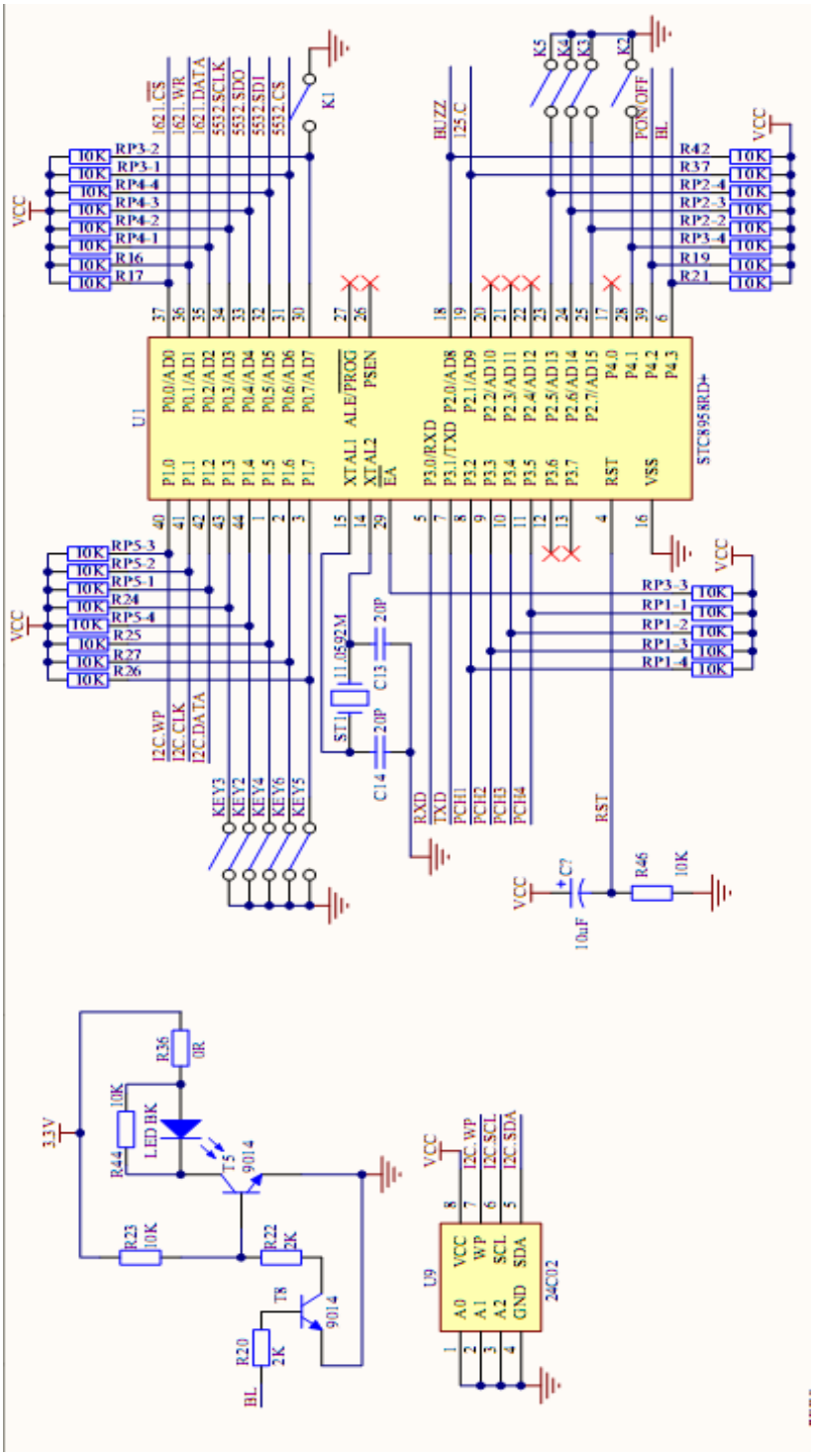
- Mains voltage problem. Check the power supply voltage and adaptor voltage.
- Charging circuit failure.
- Battery failure. Check the battery connections

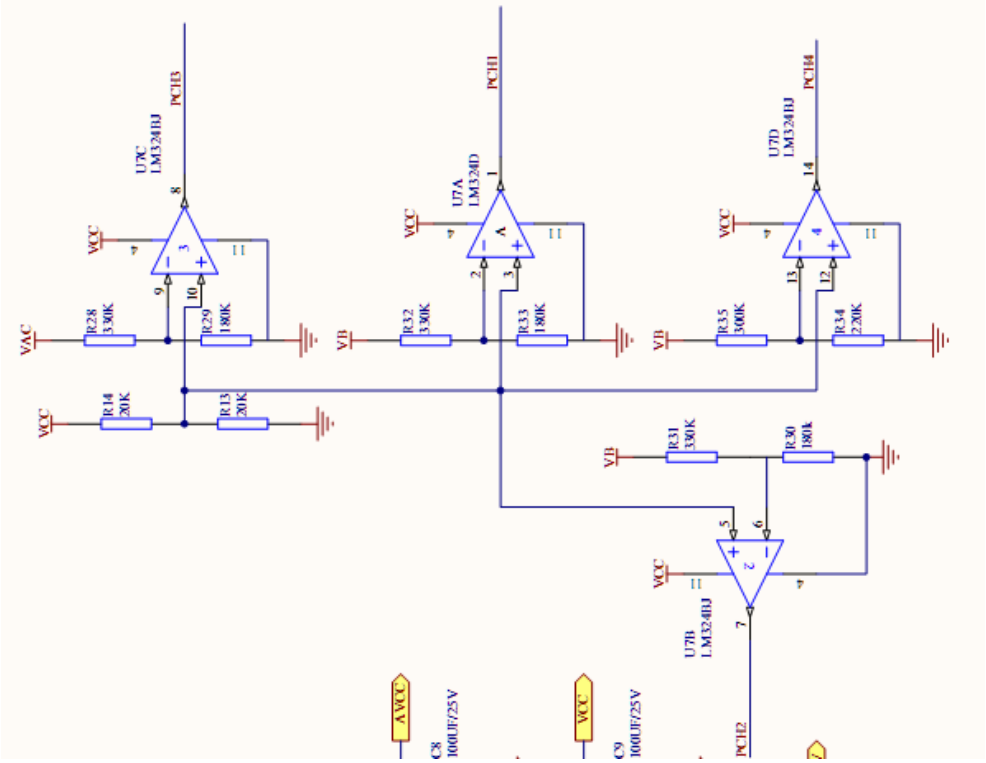
9. CIRCUIT DIAGRAM

Indicator Circuit Diagram




LCD
U2
1621B
U6
MAX232
U5
SN74HC125N
J6
J4
Header 4
VCC
GND
R12
1K
R15
10K
C12
104
R45
5.1K
T6
9014
R38
2K
C24
0.1uF
C17
106
C18
106
C19
104
C20
104
RXD
TXD
125.C


U1
STC89S58RD+
P0.0/AD0
P0.1/AD1
P0.2/AD2
P0.3/AD3
P0.4/AD4
P0.5/AD5
P0.6/AD6
P0.7/AD7
ALE/PROG
PSEN
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
XTAL1
XTAL2
EA
P3.0/RXD
P3.1/TXD
P3.2
P3.3
P3.4
P3.5
P3.6
P3.7
P2.0/AD8
P2.1/AD9
P2.2/AD10
P2.3/AD11
P2.4/AD12
P2.5/AD13
P2.6/AD14
P2.7/AD15
P4.0
P4.1
P4.2
P4.3
RST
VSS
VCC
RP3-2
RP3-1
RP4-4
RP4-3
RP4-2
RP4-1
R16
R17
RP5-3
RP5-2
RP5-1
R24
RP5-4
R25
R27
R26
R42
R37
RP2-4
RP2-3
RP2-2
RP3-4
R19
R21
RP3-3
RP1-1
RP1-2
RP1-3
RP1-4
10K
K1
K2
K3
K4
K5
BUZZ
I25.C
POWOFF
BL
I621.CS
I621.WR
I621.DATA
S532.SCLK
S532.SDO
S532.SDI
S532.CS
I2C.WP
I2C.CLK
I2C.DATA
KEY3
KEY2
KEY4
KEY6
KEY5
ST11
11.0592M
C13
C14
20P
RXD
TXD
PCI11
PCI12
PCI13
PCI14
RST
C7
10uF
R46
3.3V
R36
0R
R44
LED BK
T5
9014
R23
R22
2K
T8
R20
U9
24C02
A0
A1
A2
GND
WP
SCL
SDA
I2C.SCL
I2C.SDA


U7C
LM324BJ
PCH3
U7A
LM324D
PCH1
U7D
LM324BJ
PCH4
U7B
LM324BJ
PCH2
VCC
VB
VAC
R28
330K
R29
180K
R32
330K
R33
180K
R35
300K
R34
220K
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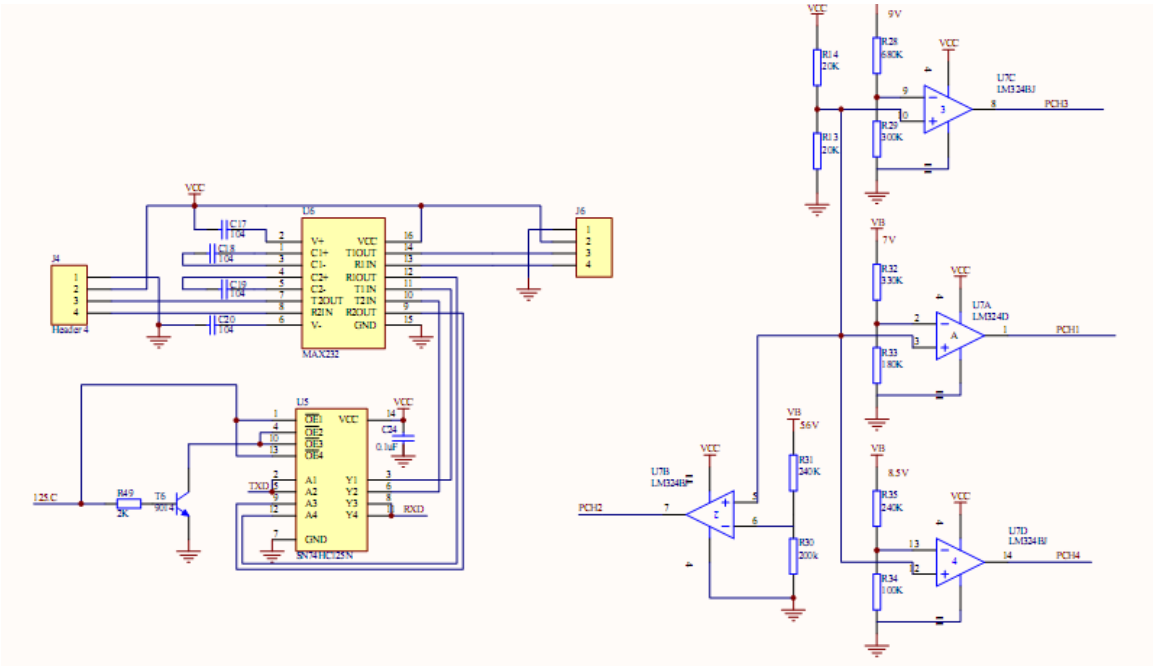
100UF/25V
C9
100UF/25V


U6
MAX232
U5
SN74HC125N
J4
Header 4
J6
C17
104
C18
104
C19
104
C20
104
C34
0.1uF
R49
2K
T6
9014
TXD
RXD
125 C
VCC
VB
9V
7V
5.6V
8.5V
R14
20K
R13
20K
R28
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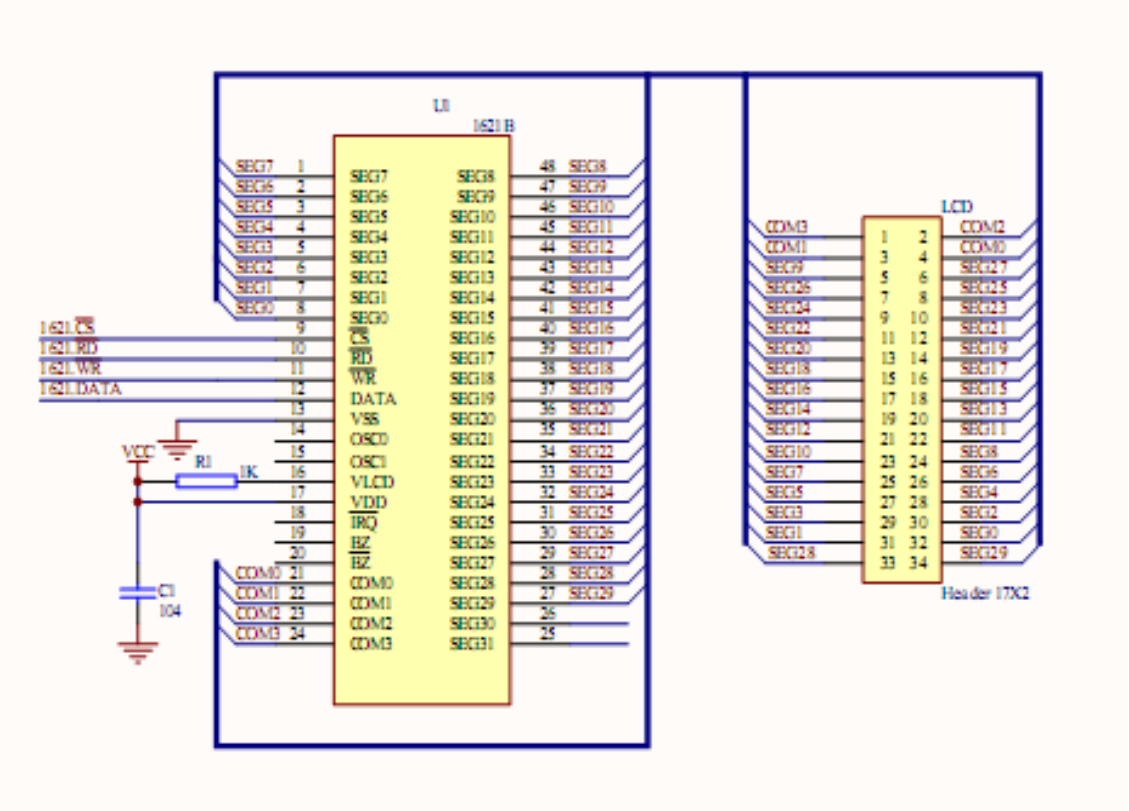
200K
R35
240K
R34
100K


U1
1621B
SEG7 1
SEG6 2
SEG5 3
SEG4 4
SEG3 5
SEG2 6
SEG1 7
SEG0 8
1621.CS 9
1621.RD 10
1621.WR 11
1621.DATA 12
13
14
15
16
17
18
19
20
COM0 21
COM1 22
COM2 23
COM3 24
SEG7 SEG8
SEG6 SEG9
SEG5 SEG10
SEG4 SEG11
SEG3 SEG12
SEG2 SEG13
SEG1 SEG14
SEG0 SEG15
CS SEG16
RD SEG17
WR SEG18
DATA SEG19
VSS SEG20
OSC0 SEG21
OSC1 SEG22
VLCD SEG23
VDD SEG24
IRQ SEG25
BZ SEG26
BZ SEG27
COM0 SEG28
COM1 SEG29
COM2 SEG30
COM3 SEG31
48 SEG8
47 SEG9
46 SEG10
45 SEG11
44 SEG12
43 SEG13
42 SEG14
41 SEG15
40 SEG16
39 SEG17
38 SEG18
37 SEG19
36 SEG20
35 SEG21
34 SEG22
33 SEG23
32 SEG24
31 SEG25
30 SEG26
29 SEG27
28 SEG28
27 SEG29
26
25
VCC
R1
1K
C1
104
LCD
COM3 1 2 COM2
COM1 3 4 COM0
SEG9 5 6 SEG27
SEG26 7 8 SEG25
SEG24 9 10 SEG23
SEG22 11 12 SEG21
SEG20 13 14 SEG19
SEG18 15 16 SEG17
SEG16 17 18 SEG15
SEG14 19 20 SEG13
SEG12 21 22 SEG11
SEG10 23 24 SEG8
SEG7 25 26 SEG6
SEG5 27 28 SEG4
SEG3 29 30 SEG2
SEG1 31 32 SEG0
SEG28 33 34 SEG29
Header 17X2

Quick Set Up

Load cell Connector (5 pin connector)		**RS-232 output**		RS-232 Data specifications
EX +	Pin 5	**TXD**	Pin 3	8 data bits (cannot be changed)
EX -	Pin 4	**RXD**	Pin 2	No Parity (cannot be changed)
Sig +	Pin 1	**GRD**	Pin 5	Baud rate adjustable 600 to 9600
Sig -	Pin 2	RS-232 is the 9 pin connector.		

Ticket printers, set printer parameter **F4 Prt** to **P Prt** select baud rate and printing format.

Remote Displays, set printer parameter **F4 Prt** to **SE irE** select baud rate.

Set Up:

Press **UNIT** and **PRINT/M+** button at the same time when you are in weighing mode.

Press **TARE** until display shows **ProG**

Press **ZERO** key and press **G/N; UNIT; ZERO** to enter into programming.

Press **TARE** to toggle between steps.

P 2 CAL is shown

Press **ZERO** select **DECi** Press **ZERO** again then press **TARE** to move decimal point, press **ZERO** to save desired decimal point.

Press **TARE** to advance to **inC** division press **ZERO** to enter use **TARE** key to select the desired increments 1;2;5;10;20;50 press **ZERO** to enter (save) desired increment.

Press **TARE** to advance to **CAP**

Press **ZERO** to enter full scale capacity using **G/N** button (toggle between digits), using the **TARE** button (increase the numbers 0-9) after selecting the full scale capacity press **ZERO** to save it.

Quick Calibration

Calibration:

Press **UNIT** and **PRINT/M+** button at the same time when you are in weighing mode.

Press **TARE** until display shows **ProG**

Press **ZERO** key and press **G/N; UNIT; ZERO** to enter into programming.

Press **TARE** until display shows **P 2 CAL** then press **ZERO**

Press **TARE** until you see **CAL** on the display.

Press **ZERO** to select **nonL in** (not linear calibration, for simple zero and span calibration)

Press **ZERO** display will show **Unload** (at this time you can also choose to calibrate in LB or KG by pressing the **UNIT** button)

Make sure nothing is on the scale then press **ZERO**

Next display will show full scale capacity, if you don't have that much test weight toggle between the digits using the **G/N** button (toggle between digits), using the **Tare** button (increase the numbers 0-9) to enter your actual weight that you will use to calibrate, Then press **ZERO** display will show LoAd (LB or KG you can still select the calibration unit by using the UNIT button) load test weight on platform and press **ZERO**, display will show **PASS** and automatically restart the indicator.

The product range can be summarized as follows:

- Counting scales for general industrial and warehouse applications.
- Digital weighing/check-weighing scales.
- High performance platform scales with extensive software facilities including parts counting, percent weighing etc.
- Digital electronic scales for medical use.
- Retail price computing scales.
- Floor scales.
- Truck scale.
- Crane scales.
- Weighing indicator for platform scales, floor scales and truck scales.
- Hand push and pull gauge.
- Customize auto weighing systems.

Totalcomp Inc. 99 Reagent Lane Fair Lawn, NJ 07410	Tel.: 800-631-0347 Fax: 888-797-2288

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

Quick Start
TRWS indicator

Load cell Connector (5 pin connector)		**RS-232 output**		RS-232 Data specifications
EX +	Pin 5	**TXD**	Pin 3	8 data bits (cannot be changed)
EX -	Pin 4	**RXD**	Pin 2	No Parity (cannot be changed)
Sig +	Pin 1	**GRD**	Pin 5	Baud rate adjustable 600 to 9600
Sig -	Pin 2	RS-232 is the 9 pin connector.		

Ticket printers, set printer parameter **F4 Prt** to **P Prt** select baud rate and printing format.
Remote Displays, set printer parameter **F4 Prt** to **SE irE** select baud rate.

Set Up:

Press **UNIT** and **PRINT/M+** button at the same time when you are in weighing mode.
Press **TARE** until display shows **ProG**
Press **ZERO** key and press **G/N; UNIT; ZERO** to enter into programming.
Press **TARE** to toggle between steps.
P 2 CAL is Shown
Press **ZERO** select **DECi** Press **ZERO** again then press **TARE** to move decimal point, press **ZERO** to save desired decimal point.
Press **TARE** to advance to **inC** division press **ZERO** to enter use **TARE** key to select the desired increments 1;2;5;10;20;50 press **ZERO** to enter (save) desired increment.
Press **TARE** to advance to **CAP**
Press **ZERO** enter full scale capacity using **G/N** button (toggle between digits), using the **TARE** button (increase the numbers 0-9) after selecting the fulls scale capacity press **ZERO** to save it.

Calibration:

Press **UNIT** and **PRINT/M+** button at the same time when you are in weighing mode.
Press **TARE** until display shows **ProG**
Press **ZERO** key and press **G/N; UNIT; ZERO** to enter into programming.
Press **TARE** until display shows **P 2 CAL** then press **ZERO**
Press **TARE** until you see **CAL** on the display.
Press **ZERO** to select **nonL in** (not linear calibration, for simple zero and span calibration)
Press **ZERO** display will show **Unload** (at this time you can also choose to calibrate in LB or KG by pressing the **UNIT** button)
Make sure nothing is on the scale then press **ZERO**
Next display will show full scale capacity, if you don't have that much test weight toggle between the digits using the **G/N** button (toggle between digits), using the **Tare** button (increase the numbers 0-9) to enter your actual weight that you will use to calibrate, Then press **ZERO** display will show LoAd (LB or KG you can still select the calibration unit by using the UNIT button) load test weight on platform and press **ZERO**, display will show **PASS** and automatically restart the indicator.