TRWS SERIES

Weighing Indicator

Service Manual

V1.24X

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

CONTENTS

1. PRECAUTIONS

WARNING

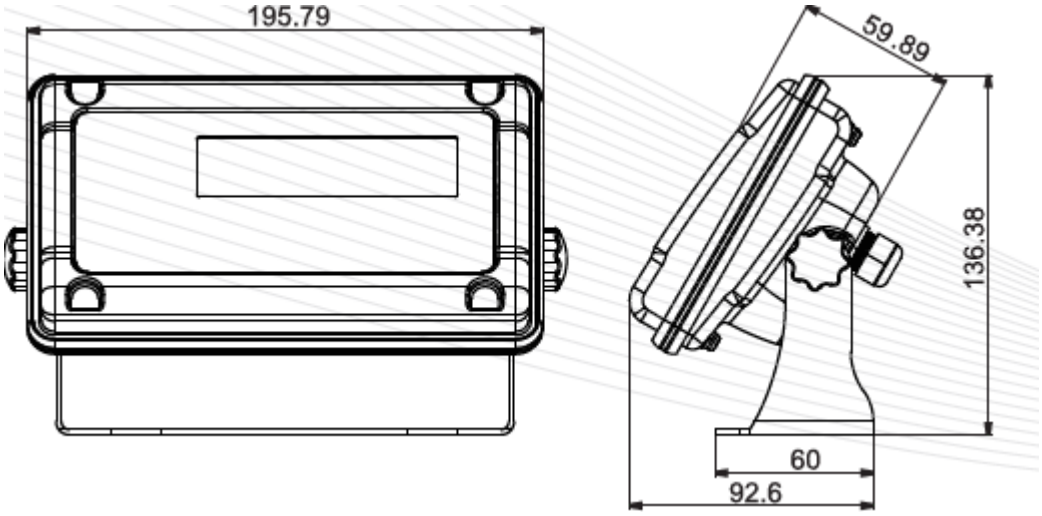
DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, CLEANING, OR SERVICING. FAILURE TO DO SO COULD RESULT IN BODILY HARM OR DAMAGE THE UNIT.

CAUTION

- **Permit only qualified persons to service the instrument**
- **Before connecting or disconnecting any components, remove the power.**
- **Failure to observe these precautions bodily harm or damage to or destruction of the equipment.**

- The weighing scale is a precision electronic instrument, handle it carefully.
- Do not install the scale in direct sunlight.
- Verify the local voltage and receptacle type are correct for the scale.
- Only use original adaptor, other could cause damage to the scale.
- Pluggable equipment must be installed near an easily accessible socket outlet.
- Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.
- Avoid sudden temperature changes, vibration, wind and water.
- Avoid heavy RF noise.
- Keep the scale clean

2. SPECIFICATIONS



Model	TRWS
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/2000mAh 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

3. INTRODUCTION

- The TRWS series weighing indicator that amplifies signals from a load cell, converts it to digital data and displays it as a mass value.
- It is suitable for general weighing or more specialized applications such as check weighing, animal weighing and accumulation applications.
- It can connect the indicator to a printer or a PC.
- Large LCD with white LED back light display

4. INSTALLATION

Unpacking

When you receive the scale, inspect it to make sure that it is not damaged and that all are parts are included:

- Remove the Indicator from the carton.
- Remove the protective covering. Store the packaging and to use if you need to transport the scale later.
- Inspect the indicator for damage.
- Make sure all components are included.
  1. Indicator
  2. Adaptor
  3. Manual
  4. Indicator holder (Optional)
  5. Load cell Output connecter (Optional)
  6. RS-232 Output Connecter (Optional)

Installation

- Place the Indicator on a table or connect with proper stand.
- Connect the plat form load cell cable in to the indicator load cell connecter. Load cell connecter is locating back side of the indicator.
- Connect the adaptor pin in to the indicator adaptor jack.
  Adaptor jack is locating, back side of the indicator.
- Adaptor connects into your AC power socket.
  Pluggable equipment must be installed near an easily accessible socket outlet with a protective ground/ earth contact.
- Turn on the On/Off key. If you want to turn off, press the key again.
- Display will be show the scale software version and will be start self-checking.
- After self-checking, display will be come to normal weighing mode.
- Warm-up time of 15 minutes stabilizes the measured values after switching on.
- Calibrate with exact calibration weights, minimum 1/3 of the scale capacity want to use for calibration. For calibration see details in parameter.

Then you can start your operation

Load cell connections

- Connect the load cell cables to the terminal as shown table.

5Pin Air Connector	
Pin 1	Signal +
Pin 2	Signal -
Pin 3	Shield
Pin 4	Exc -
Pin 5	Exc +

- It can connect four 350 ohm load cells.
- The load cell drive voltage is 5V DC ±5% between Excitation + and Excitation -.

Connect Adaptor and Charging

- 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 12 hours for full capacity.
- The symbol status of the battery

Battery voltage has dropped 

Low voltage 

Fully charged 

.

- Do not use any other type of power adaptor than the one supplied with the scale.
- Verify that the AC power socket outlet is properly protected.

Note: Please charge the battery before using the scale for the first time.

Quick Set Up

Load Cell Connector (5 Pin Connector)	
Pin 1	Sig +
Pin 2	Sig -
Pin 4	Ex-
Pin 5	Ex +

RS-232 Out Put (9 Pin Connector)	RS-232 Data Specification
Pin 3 TXD	8 data bits (Fixed)
Pin 2 RXD	No Parity (Fixed)
Pin 5 GND	Baud Rate adjustable 600 to 9600

Ticket printer: set printer parameter to F4 Prt to P Prt, Select baud rate and printing format.

Remote Displays, Set printer parameter F4 prt to SEirE , baud rate.

Set Up:

Note: To enter into the calibration mode operations, refer section 7; page 20 for to enter and access.

Press UNIT key and PRINT M+ key together, when in the weighing mode.

Press TARE continuous until display will be shows. **`prog`**

Press ZERO , display will be show. **`pin`**

Enter the password. Press G/N , UNIT and ZERO
Display will be show **`P1 ref ,`**

Press TARE , display will be show. **`P 2 cal`**

Press ZERO key and select DECi,

Press ZERO key and press TARE key to move decimal point, press ZERO key to confirm desired decimal point.

Press TARE key to advance to **inC** division,

Press ZERO key and press TARE key to change increment, press ZERO key to confirm desired increment.

Press TARE key to advance to **CAP**,

Press ZERO key and enter full capacity by using G/N key (toggle between digits) using TARE key (increase the numbers 0~9) after selecting full capacity press ZERO key to save.

Quick Calibration

Note: To enter into the calibration mode operations, refer section 7; page 20 for to enter and access.

Press UNIT key and PRINT M+ key together, when in the weighing mode.

Press TARE continuous until display will be shows. **prog**

Press ZERO , display will be show. **pin**

Enter the password. Press G / N , UNIT and ZERO
Display will be show **P1 ref ,**

Press TARE , display will be show. **P 2 CAL**

Press ZERO key and press TARE until to display show **CAL**

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

Press ZERO , display will be show. **UnLoad** (at this time you can also choose calibrate in LB or KG by pressing UNIT key)

Make sure nothing is on the scale , then press ZERO key.

Display will be show last calibrated test weight value, if you want to change the test weight value, toggle between the digits by using G / N key (toggle between digits) using TARE key (increase the numbers 0~9) after selecting test weight value press ZERO key to save, display will be show **LOAd**

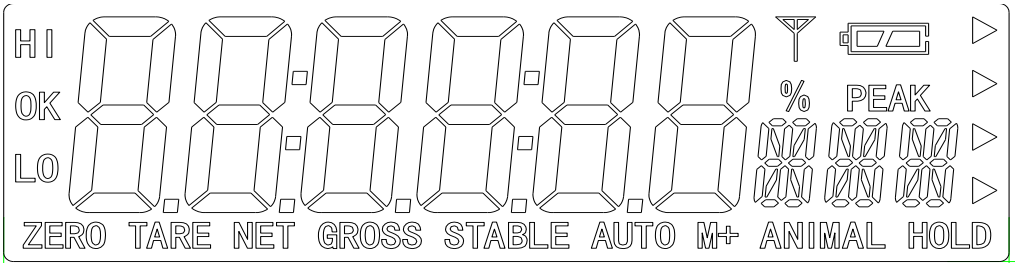
(LB or KG you can still select the calibration unit by using UNIT key)

Load test weight on the platform and press ZERO key, display will show PASS and automatically restart the indicator.

5. 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 Board

KEY	FUNCTION
ON/OFF	Turn the power On/ Off
ZERO	Used to reset to Zero. In setting mode can use to confirm entry
TARE	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.
G / N	When the scale has been tared and display is in gross or net mode. When using the settings mode, can use to move active digits right.
PRINT M+	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.
UNIT	In settings mode, escape back to menu/ weighing mode.

6. 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. Tared 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 beeper will be sounded.
- **Check mode 3:** When the weight is out of the limits, **t**he beeper will be sounded 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

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

After select this function, display will be show "ANIMAL "indication.

- 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

TRWS 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

7. PARAMETERS

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.

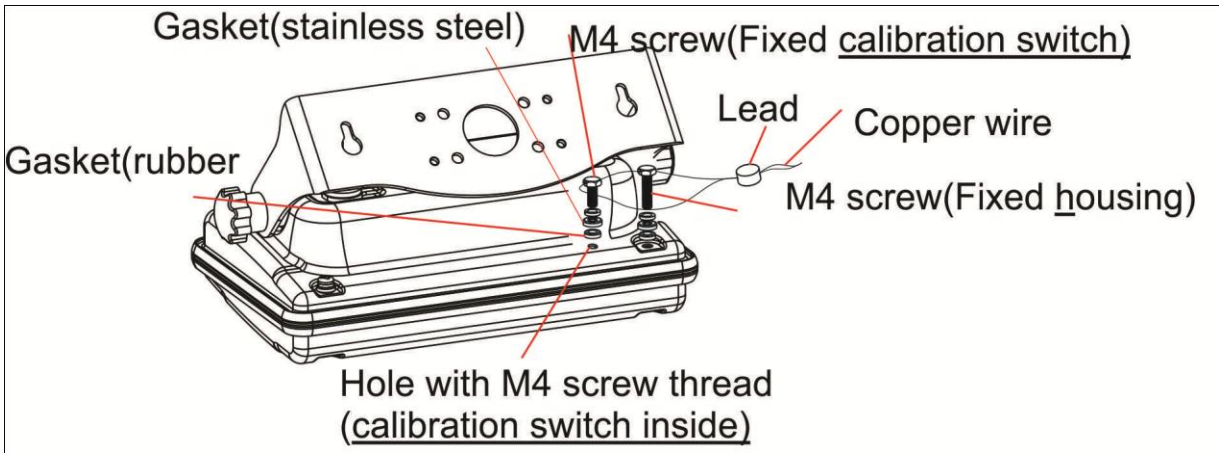
PARAMETER BLOCK

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	kg	Weighing units	
	g		
	Oz		
	LZ		
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
F4 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		

<table>
<tr><td rowspan="11"></td><td colspan="3">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</td></tr>
<tr><td colspan="3">Set print out format
If enter settings p prt, p auto, p cont and connected optional printer</td></tr>
<tr><td>Pr X</td><td>Print format</td><td rowspan="2">Only for p prt, p auto format</td></tr>
<tr><td>Lab X</td><td>Print format</td></tr>
<tr><td>Cont 1</td><td colspan="2" rowspan="3">Only for p cont only
N.A</td></tr>
<tr><td>Cont 2</td></tr>
<tr><td>Cont 3</td></tr>
<tr><td colspan="3">Set printer type</td></tr>
<tr><td>Ty-tp</td><td colspan="2">Ticket printer</td></tr>
<tr><td>Ty 711</td><td colspan="2">Label printer</td></tr>
<tr><td>Lp 50</td><td colspan="2">Label printer</td></tr>
<tr><td rowspan="3"></td><td colspan="3">Print and Accumulation On/Off</td></tr>
<tr><td>Acc on</td><td colspan="2">Print and weighing data will be save into memory.</td></tr>
<tr><td>Acc off</td><td colspan="2">Print and data will not save.</td></tr>
<tr><td>prog</td><td>pin</td><td colspan="2">Enter the programming and calibration menus by using password G/N , UNIT and ZERO</td></tr>
</table>

PROGRAM PARAMETERS

Note: Prog parameters (P1 Ref / P2 Cal / P3 Pro) are protected by calibration switch. Before entering these functions press calibration switch to access.



Menu	Sub Menu	Description	
P1 ref	A2n 0	oFF	Auto zero point settings
		0.5d	
		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 4	
		P 2 10	
		P 2 20	
		P2 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	As the mode 3, but M+ out format different	

8. CALIBRATION

Note: To enter into the calibration mode operations, refer section 7; page 20 for to enter and access.

- 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 lb`

  (at this time you can also choose calibrate in LB or KG by pressing UNIT key)

- 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 Currently adjustment

```
05.000 lb
```

- If want to change by using the keys G/N , UNIT and ZERO to select the required setting

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

```
Load lb
```

- 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
```

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
```

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

```
Load 0 lb
```

(at this time you can also choose calibrate in LB or KG by pressing UNIT key)

- 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 1 lb
```

- 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 2 lb
```

- 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 lb
```

- 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
```

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.

9. RS-232 OUTPUT

TRWS 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

9pin D type connector

Pin 2	RXD	Input	Receiving data
Pin 3	TXD	Output	Transmission data
Pin 5	GND	—	Signal ground

9pin D Connecter:

Indicator	Computer/ Printer
Pin 2:	Pin 3
Pin 3:	Pin 2
Pin 5:	Pin 5

Note: If data is not getting in PC, want to inter-change one of the Pin 2 and Pin3 connections

Continuously output protocol

Con1:

		,			-/ ␣								k	g	CR	LF
HEADER1		HEADER2				WEIGHT DATA							WEIGHT UNIT		TERMINATOR	

HEADER1: ST=STABLE， US=UNSTABLE

HEADER2: NT=NET， GS=GROSS

Print Out Formats

Note: Lab 0 & 2 for English and Lab 1 & 3 for Chinese Language

Lab / Pr	0	1	2	3
0	2011/12/30 11:11 **WEIGHT: 1.00kg**		**WEIGHT: 1.00kg**	
1	2011/12/30 11:11 **WEIGHT: 1.00kg** **TOTAL: 1.00kg**		**WEIGHT: 1.00kg** **TOTAL: 1.00kg**	
2	2011/12/30 11:11 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg		NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg	
3	2011/12/30 11:11 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg TOTAL: 10.00kg		NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg TOTAL: 10.00kg	
4	2011/12/30 11:11 **S/NO: 10** **WEIGHT: 1.00kg**		**S/NO: 10** **WEIGHT: 1.00kg**	
5	2011/12/30 11:11 S/NO: 10 WEIGHT: 1.00kg TOTAL: 10.00kg		S/NO: 10 WEIGHT: 1.00kg TOTAL: 10.00kg	
6	2011/12/30 11:11 S/NO: 10 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg		S/NO: 10 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg	

7	2011/12/30 11:11 S/NO: 10 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg TOTAL: 10.00kg		 S/NO: 10 NET: 1.00kg GROSS: 1.00kg TARE: 0.00kg TOTAL: 10.00kg	

10. MAINTENENCE

WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, CLEANING, OR SERVICING. FAILURE TO DO SO COULD RESULT IN BODILY HARM OR DAMAGE THE UNIT.

CAUTION

- **Permit only qualified persons to service the instrument**
- **Before connecting or disconnecting any components, remove the power.**
- **Failure to observe these precautions bodily harm or damage to or destruction of the equipment.**

10.1. General

If the scale does not operate properly, find out the problem as possible. Determine whether the problem is constant or alternate. Be aware that problems can be caused by mechanical or electrical influences.

Check the following.

- Water
- Corrosive materials
- Vibrations or temperature or wind
- Physical damage

Check the indicator cables for damage, and check all connections and connecters for any loose contact or incorrect connection

10.2. Error Codes

Indicator's error message's following lists

ERROR CODES

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.

10.3. Determine the Problem

Determine whether the problem is in the indicator or the platform

- Remove power from the system, and disconnect the indicator from the platform
- Connect the indicator to a load cell simulator

- Reapply power and test the indicator
- If problem goes away, its source is probably in the platform. Check the wiring, connecter, load cells and mechanical components of the platform. If problem persists, its source is probably in the indicator. Check the indicator voltages, connecters, cables and function programs.

10.4. Check the Load cell

- Remove power from the system, and disconnect the indicator from the platform
- Remove the load connecter from platform terminal.
- Check the moisture, or foreign material inside.
- Make sure all leads are connected and correctly. See the details of connections in the Installation section.
- Check load cell for proper input and output resistances

Measuring Points	**Resistance**
+ Exc to –Exc (Input)	420Ω ±10Ω
+Sig to –Sig (Output)	350 Ω ± 0.3 Ω

10.5. Check Indicator Voltages

If the problem is in the Indicator, use a multimeter to check the following voltages

10.5.1 AC Power

Check the AC power socket out put voltage.

- Voltage must be a -20% and +10% of the normal AC voltage.

10.5.2 Adaptor Voltage

Check the adaptor output cable connecter voltage

- Voltage must be minimum 9VDC and maximum 15VDC

10.5.3 PCB Input Voltage

Check the PCB input power connecter voltage

- Voltage must be minimum 9VDC in to the pin AD+

10.5.4 Check Battery Voltage and Charging Voltage

1. Check the Battery Voltage,
   - Voltage must be minimum 6VDC. If below the 6VDC connect the adaptor for charging

- The battery voltage below the 5.5VDC, replace the battery and install new 1.2V/1200mAh battery.

2. Check the Battery Charging Voltage;
   - Remove the battery connection terminals (Red and Black) from the battery.
   - Connect the power and turn on the Indicator
   - Voltage into the terminal minimum 6.5VDC

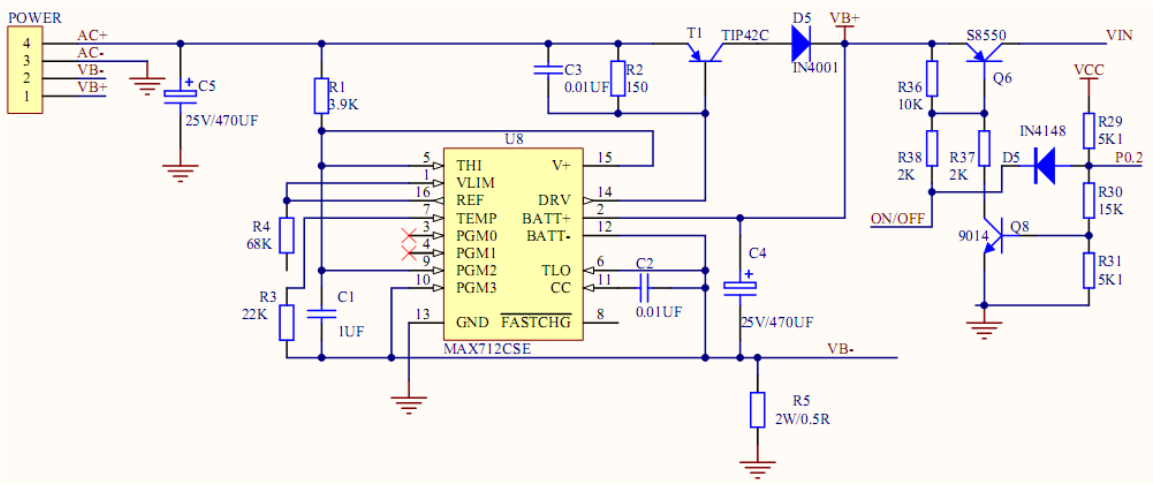
10.6. Problems and Solutions

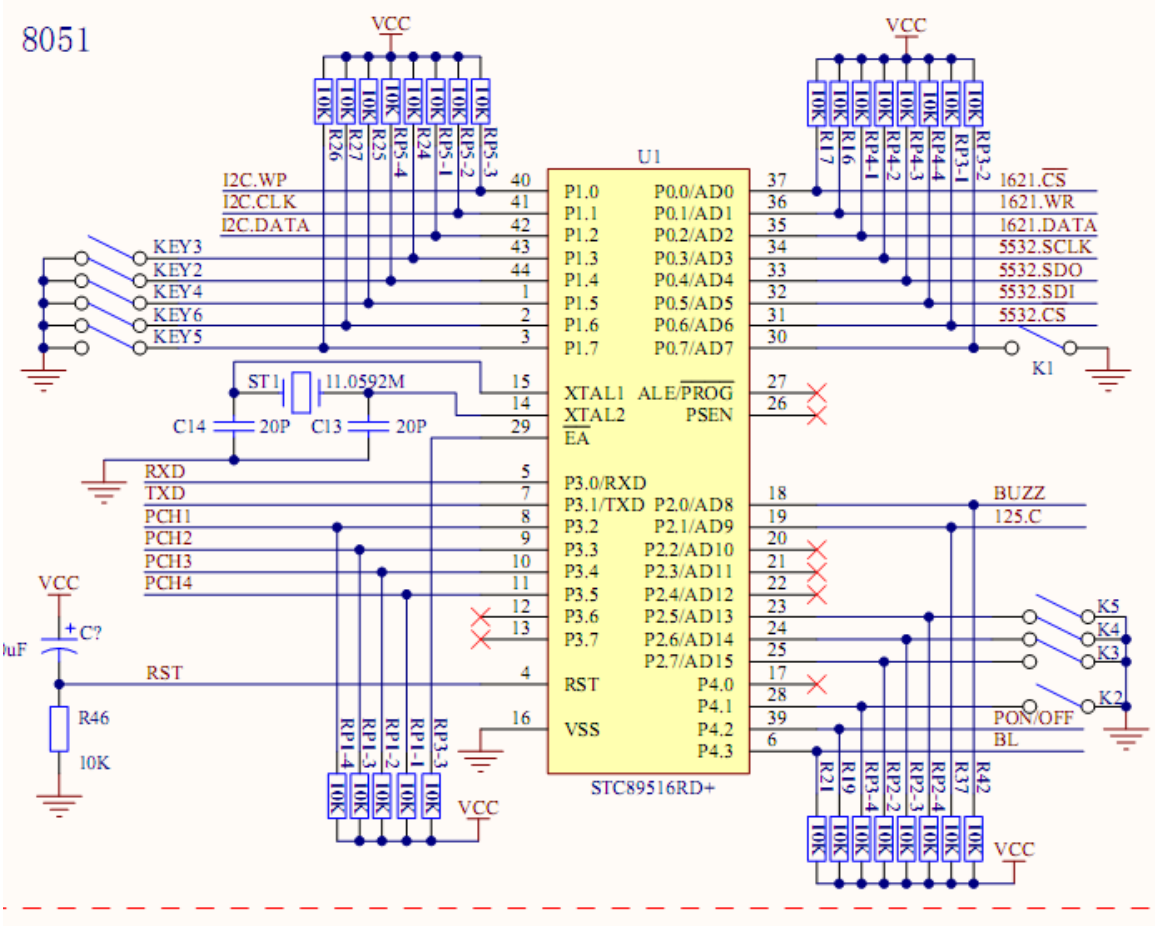
Problems	Possible cause	Common Solutions
Display is blank. No self test	Mains power is turned off. Power supply faulty or not plugged. Internal battery is not charged. On/Off switch problem	Check power is getting inside the scale and on/off switch is working. Verify the voltages, which is on the power labels.
Blank display after self test	Pan not installed. Unstable weight, load cell damaged	Check the pans are installed correctly. Try to turning on again.
OL or -------	Maximum capacity exceeded. Load cell or mechanics damaged. Power supply faulty	Check the platform is installed correctly. Try to turn on the scale again. Do the calibration again
------- or NULL displayed	Weight is on the platform is below permissible limit. Pan not installed correctly. Power supply faulty. Load cell or mechanism faulty	Check the platform is installed correctly. Try to turn on the scale again. Do the calibration again
Display is unstable	Goods touching somewhere. Air variation or any vibrations. Temperature changed . Load cell or connections faulty. Power supply faulty	Check the scale is in acceptable location. Check the connecters and load cell. Check the power supply and battery
Weight value incorrect	Calibration error. Platform of load cell touching somewhere.	Use accurate weight for to do the calibration Check the pan and load cell is

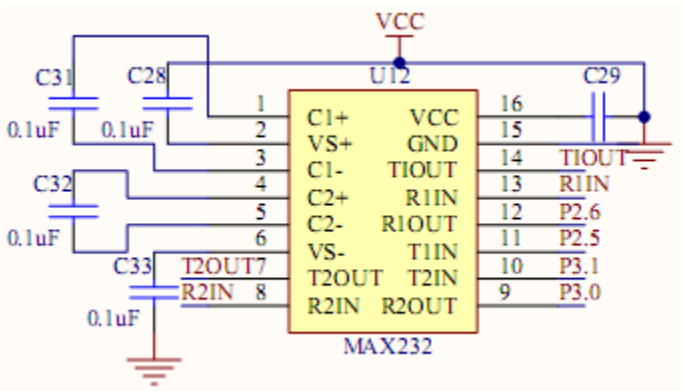
	Wrong weighing unit	installed proper and touching. Check the parameter settings. Check the load cell and connecters
Can not use full capacity	Over load protection stoppers or transport locks are not removed. Parameters are set incorrectly. AD problem. Load cell or mechanism damaged	Check the stoppers and locks under the platform. Check the weighing unit and parameter settings. Check the load cell.
Platform Corner Weight different	Over load protection stoppers or transport locks are not removed. Load cell or mechanism damaged	Check the stoppers and locks under the platform. Use accurate weight for to do the calibration Check the load cell.
Battery not charging	Mains voltage problem Charging circuit problem Battery Problem	Check the mains and adaptor. Check the battery. Check the charging circuit

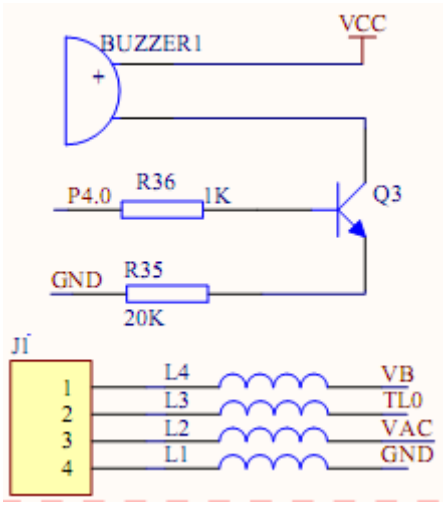
11. CIRCUIT DIAGRAM

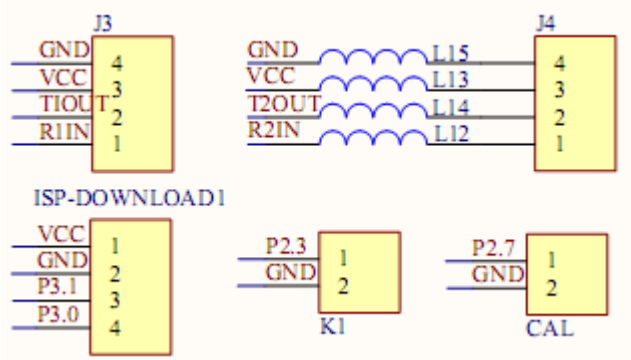
Indicator Circuit Diagram

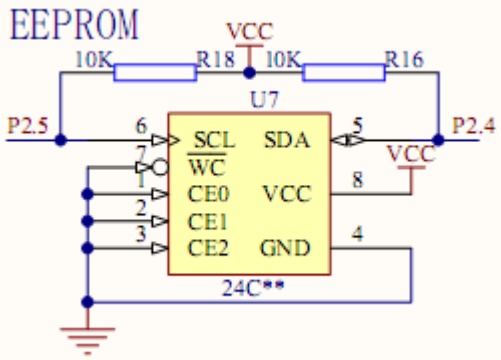


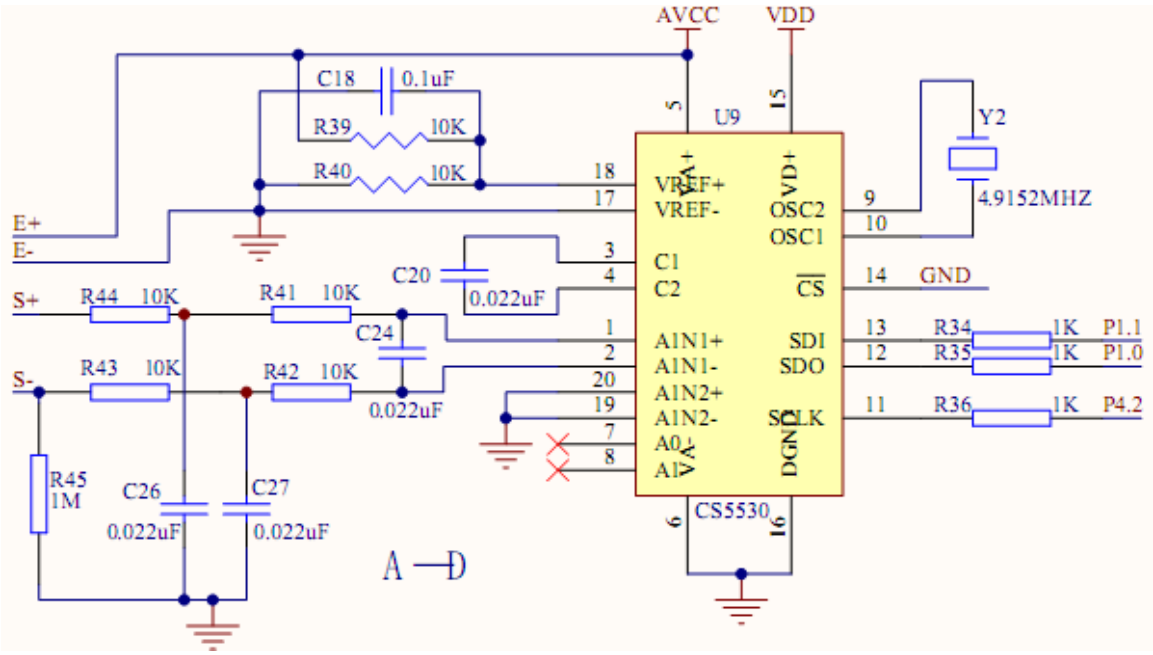


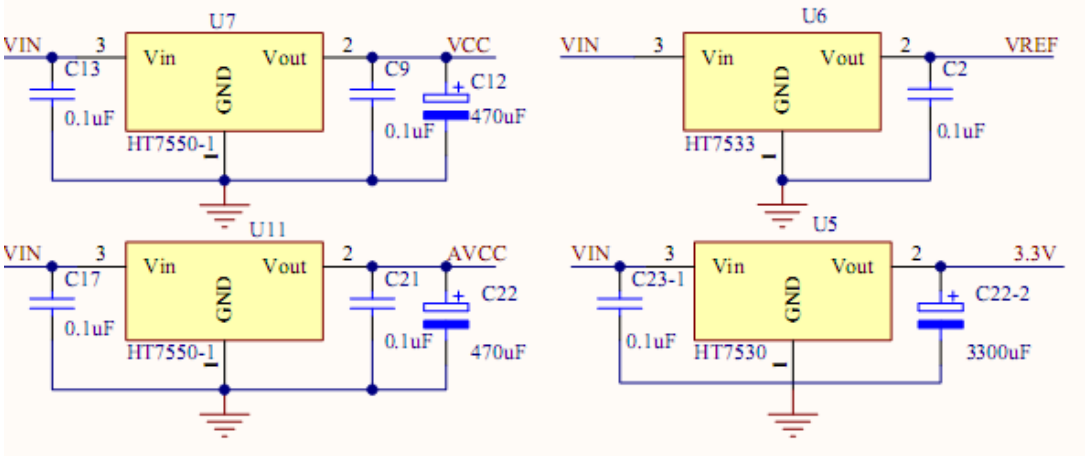

VCC
U12
C31
C28
C29
0.1uF
0.1uF
C32
0.1uF
C33
0.1uF
T2OUT7
R2IN 8
C1+ VCC
VS+ GND
C1- TIOUT
C2+ R1IN
C2- R1OUT
VS- T1IN
T2OUT T2IN
R2IN R2OUT
16
15
14 TIOUT
13 R1IN
12 P2.6
11 P2.5
10 P3.1
9 P3.0
MAX232

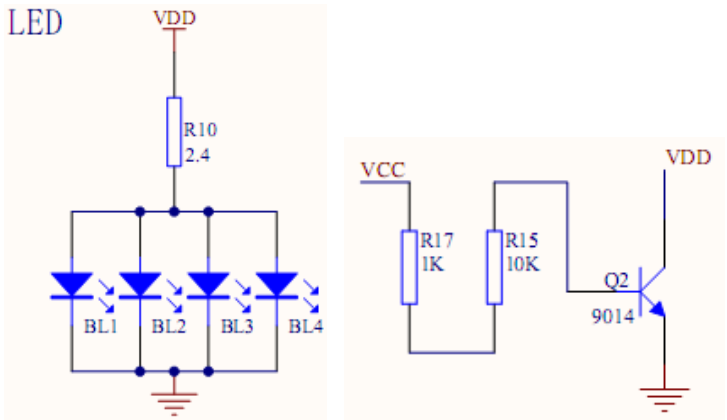

VCC
BUZZER1
P4.0
R36
1K
Q3
GND
R35
20K
J1
L4
L3
L2
L1
VB
TL0
VAC
GND

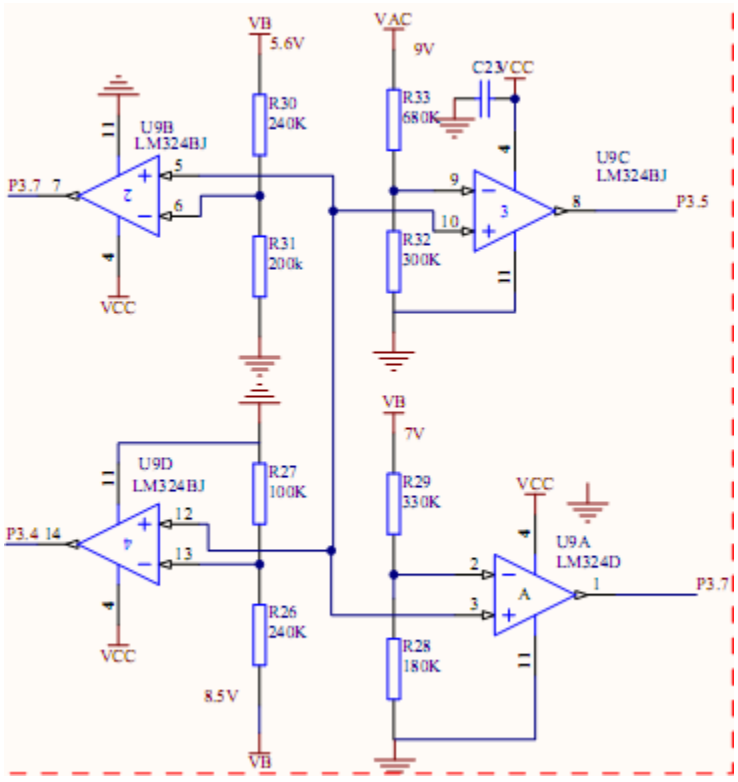

J3
GND
VCC
TIOUT
R1IN
J4
GND L15
VCC L13
T2OUT L14
R2IN L12
ISP-DOWNLOAD1
VCC
GND
P3.1
P3.0
P2.3
GND
K1
P2.7
GND
CAL

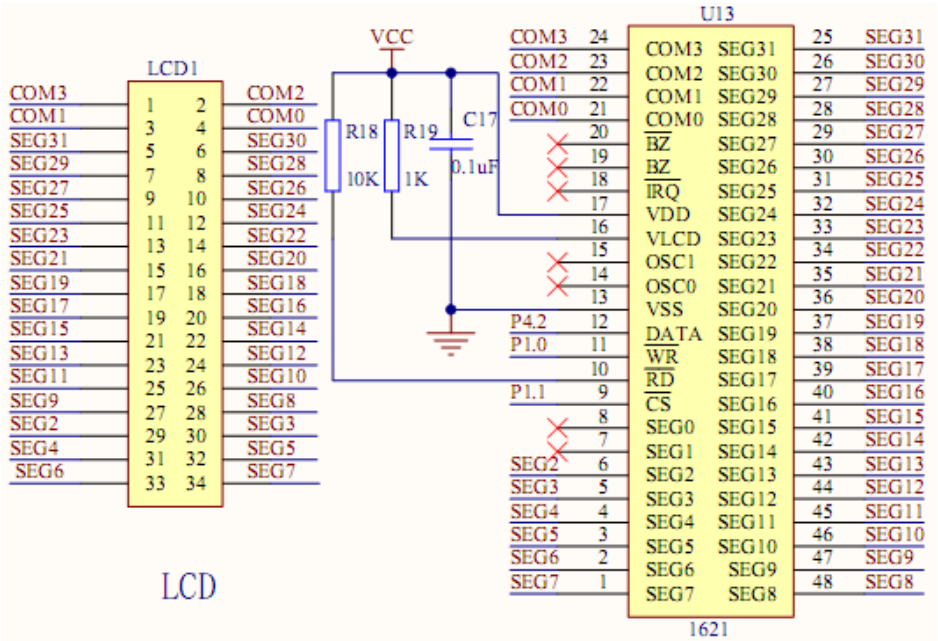

EEPROM
VCC
10K
R18
10K
R16
U7
P2.5
P2.4
SCL
SDA
WC
CE0
VCC
CE1
CE2
GND
24C**


AVCC
VDD
C18
0.1uF
R39
10K
R40
10K
U9
Y2
4.9152MHZ
E+
E-
S+
R44
10K
R41
10K
C20
0.022uF
C24
S-
R43
10K
R42
10K
0.022uF
R45
1M
C26
0.022uF
C27
0.022uF
VREF+
VREF-
C1
C2
OSC2
OSC1
CS
GND
A1N1+
A1N1-
A1N2+
A1N2-
A0
A1
SDI
SDO
SCLK
DGND
R34
1K
P1.1
R35
1K
P1.0
R36
1K
P4.2
CS5530
A/D

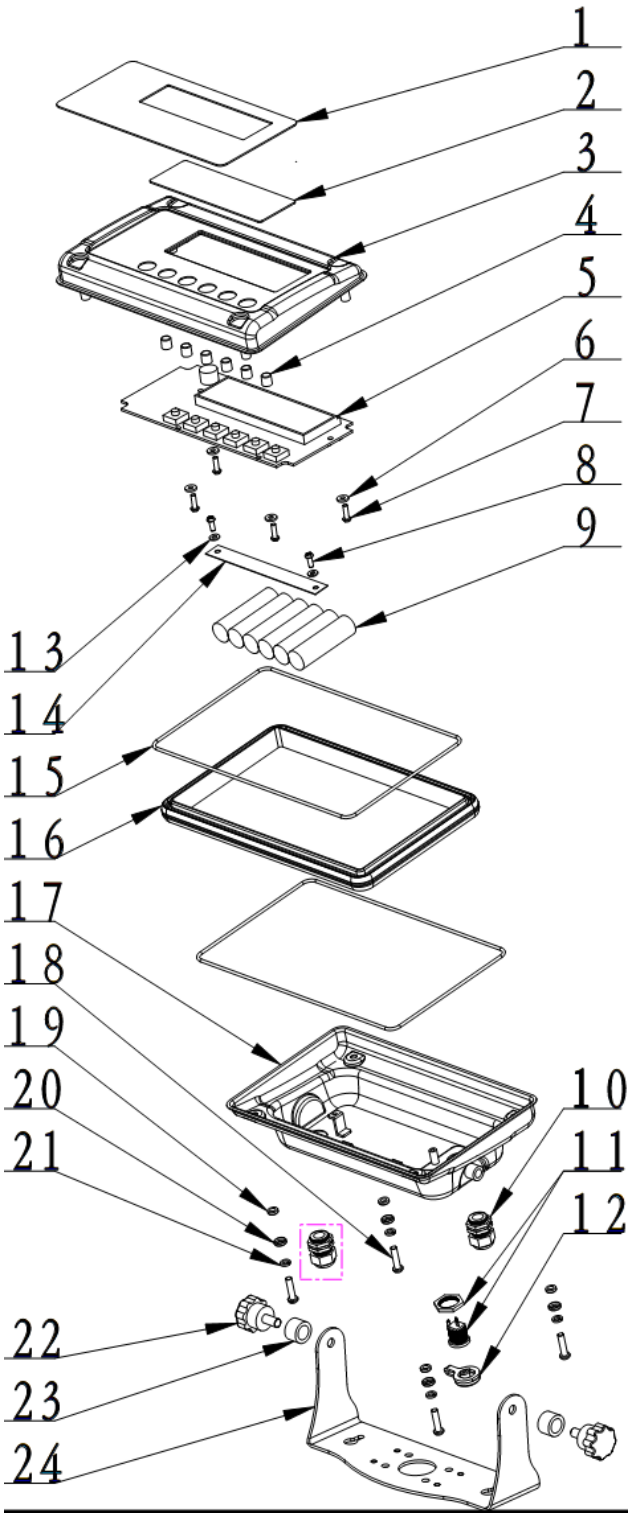

U7
VIN
3
Vin
GND
Vout
2
VCC
C13
0.1uF
C9
0.1uF
C12
470uF
HT7550-1
U6
VIN
3
Vin
GND
Vout
2
VREF
C2
0.1uF
HT7533
U11
VIN
3
Vin
GND
Vout
2
AVCC
C17
0.1uF
C21
0.1uF
C22
470uF
HT7550-1
U5
VIN
3
Vin
GND
Vout
2
3.3V
C23-1
0.1uF
C22-2
3300uF
HT7530


LED
VDD
R10
2.4
BL1
BL2
BL3
BL4
VCC
VDD
R17
1K
R15
10K
Q2
9014


VB
5.6V
VAC
9V
C23
VCC
R33
680K
U9B
LM324BJ
P3.7
7
5
6
R30
240K
R31
200k
VCC
U9C
LM324BJ
9
10
8
P3.5
R32
300K
VB
7V
U9D
LM324BJ
P3.4
14
12
13
R27
100K
R29
330K
VCC
U9A
LM324D
2
3
1
P3.7
R26
240K
R28
180K
VCC
8.5V
VB


LCD1
COM3
COM1
SEG31
SEG29
SEG27
SEG25
SEG23
SEG21
SEG19
SEG17
SEG15
SEG13
SEG11
SEG9
SEG2
SEG4
SEG6
COM2
COM0
SEG30
SEG28
SEG26
SEG24
SEG22
SEG20
SEG18
SEG16
SEG14
SEG12
SEG10
SEG8
SEG3
SEG5
SEG7
LCD
VCC
R18
10K
R19
1K
C17
0.1uF
P4.2
P1.0
P1.1
U13
COM3 24
COM2 23
COM1 22
COM0 21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
SEG2 6
SEG3 5
SEG4 4
SEG5 3
SEG6 2
SEG7 1
COM3 SEG31
COM2 SEG30
COM1 SEG29
COM0 SEG28
BZ SEG27
BZ SEG26
IRQ SEG25
VDD SEG24
VLCD SEG23
OSC1 SEG22
OSC0 SEG21
VSS SEG20
DATA SEG19
WR SEG18
RD SEG17
CS SEG16
SEG0 SEG15
SEG1 SEG14
SEG2 SEG13
SEG3 SEG12
SEG4 SEG11
SEG5 SEG10
SEG6 SEG9
SEG7 SEG8
25 SEG31
26 SEG30
27 SEG29
28 SEG28
29 SEG27
30 SEG26
31 SEG25
32 SEG24
33 SEG23
34 SEG22
35 SEG21
36 SEG20
37 SEG19
38 SEG18
39 SEG17
40 SEG16
41 SEG15
42 SEG14
43 SEG13
44 SEG12
45 SEG11
46 SEG10
47 SEG9
48 SEG8
1621

12. DRAWING



No	Parts Name
1	Display Overlay
2	Display Acrylic Board
3	Up Cover
4	Key Head
5	Main Board
6	M3 Insulation Gasket
7	Cross Round Screws
8	Cross Round Screws
9	Ni-MH Battery
10	Metal Water proof threading Head Component
11	Round Adaptor Base Component
12	Adaptor Rubber Stuff
13	Flat Gasket
14	Battery layering
15	Seal Ring
16	Plastic
17	Bottom Case
18	Gross Round Screws
19	Seal Gasket
20	Cover Gasket
21	M4 Spring washer
22	Hand Tighten Screws
23	Support Frame Bush
24	Support Frame

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