

T-Scale



Technical Manual

TN

Crane Scales



V1.13-V1.10
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1. PRECAUTIONS

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

 CAUTION
<ul style="list-style-type: none"> • 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.

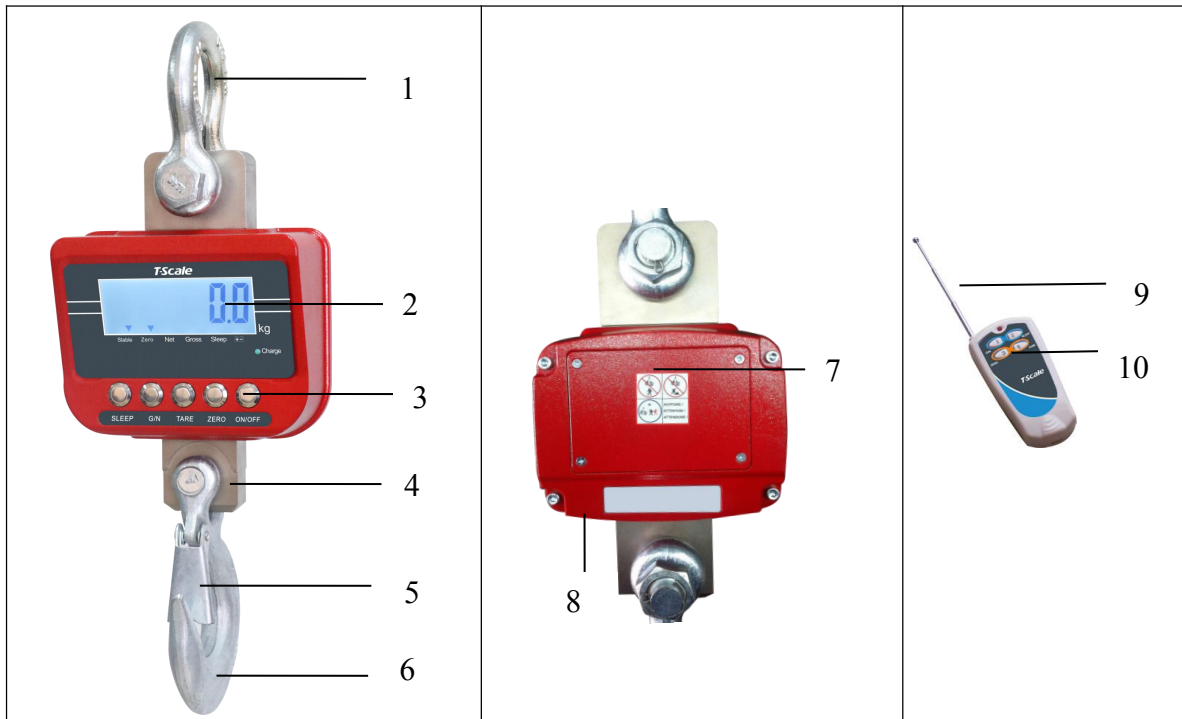
- The crane scale is a precision electronic instrument, handle it carefully.
- Use the crane scales only for lifting and weighing of freely movable loads.
- Do not stand or go under suspended loads.
- Do not use on building site.
- Keep an eye on suspended.
- Do not exceed nominal load of crane scales.
- 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.
- When working with the crane and crane scales wear personal safety equipment (helmet, safety shoes etc.).

2. PRODUCT DESCRIPTION

2.1 General

- The crane scales has Die-Casting Aluminum housing ,that are a multi-purpose and cost-saving solution for overhead weighing applications .
- 30mm digits LCD display with LED back light.
- Rechargeable Li-battery operation.
- Sleep function.
- With remote controller for controlling, easy to operate.
- IP65 waterproof technology

2.2 Overview



1. Loop
2. Weight display
3. Keyboard
4. Load housing
5. Safety bracket
6. Hook

7. Battery cover
8. AC adapter jack
9. Antenna
10. Controller keyboard

3. INSTALLATION

3.1 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 scale from the carton.
- Remove the protective covering. Store the packaging and to use if you need to transport the scale later.
- Inspect the scale for damage.
- Make sure all components are included.
- Crane Scale 2.Remote control 3. Adaptor 4. Manual

3.2 Installation

- The location must be such that the instrument is not subject to excessive vibrations, heat or humidity.
- Avoid direct sunlight on the front of the instrument.
- The unit has to be installed at the right height to allow an easy reading of the display and convenient keyboard operation.
- The loads which hang on the hook should be a vertical load.


3.3 Power Connection

- Connect the adaptor pin in to the indicator adaptor jack. Adaptor jack is locating below the scale.
- Adaptor connects into your AC power socket. Plugable equipment must be installed near an easily accessible socket outlet with a protective ground/ earth contact.



3.4 Rechargeable battery operation

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

- The [▼] indicator above  indicator appears indicates that the battery is getting low. It's time to charge the battery with the AC power. If scale goes on being used without proper charging, <LO-BAT> words will flicker on the display.
- Approximately 30 minutes of instrument usage are left; afterwards it will shut off automatically.
- Please use the supplied battery charger for charging the battery immediately, or scale cannot be used.

3.4.1 Charging the battery

- Before the first use, the battery should be charged by connecting it to the mains power supply for at least 5 hours.

- When the scale is plugged into the mains power the internal battery will be recharged.
- Verify that the AC power socket outlet is properly protected.
- Under right side of the weight display there is an charging LED to indicate the status of battery charging
- Charge status of rechargeable battery is indicated by the LED display.
- Yellow:The battery is being charged
- Red: The battery is nearly discharged
- Green: Rechargeable battery is completely charged

3.4.2 Battery maintenance

- Do not use any other type of power adaptor than the one supplied with the scale.
- Recharge battery should be changed in every three months when not in use.
- If the scale is not used for an extended period of time,remove the battery from the battery compartment to avoid leakage.
- Store the battery in a sealed bag or box in a dry, temperate environment.
- Do not throw away as rubbish of daily life.

4. DISPLAY&KEYS FUNTION

4.1 Key Board

SLEEP G/N TARE ZERO ON/OFF

Keys	Description
ON/OFF	ON/OFF key ,turn the scale on / off.
ZERO	1)Zero key,Used to clear and zero the display. 2)Enter key. Used to enter the selected menu,sub-menu and setting .
TARE	1)Tare key,Used to perform a tare function, Subtracts weights. 2)Setup menu key.Used to enter the setup menu during self-checking. 3)To change the menu option in menu setting.
G/N	1)Used to shift the gross weight and net weight. 2)Right arrow key. Used to move the digit to the right. 3)Escape key ,Used to escape from menu setting.
SLEEP	1)Sleep mode key ,Used to enter sleep mode in normal weighing mode. 2)Clear the active digits in setting mode

4.2 Indication Description



Display	Description
NET	Net indicator. Indicates scale is displaying the net weight.
STABLE	Stable indicator. Indicates the scale weight is stable.
ZERO	Zero indicator.Indicates the scale is at zero.
SLEEP	Sleep mode indicator, when this indicator on, scale will be into the sleep mode
GROSS	Gross indicator. Indicates scale is displaying the gross weight.
	Battery indicator. The battery should be charged when the symbol is on.
CHARGE	Charging indicator.Indicates the battery charging status.
	Bluetooth or WIFI indicator.Indicates scale is in Bluetooth or WIFI communication mode,the indicator depends on the option selected in sub-menu

4.3 Remote controller



Key 1	For using shift gross and net weight
Key 2	For using enter sleep mode
Key 3	For using enter Zero
Key 4	For using tare

5. OPERATION

Initial Start-up

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

5.1 Switching on/off

- Switch on the scale by pressing **ON/OFF** key. Display will be show the scale version and will be starting self checking.
- After self checking, display will be come to normal weighing mode.
- To switched off the scale, press **ON/OFF** key again.

5.2 Zeroing

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.

5.3 Using 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.

Taring a container

- Load weight on the hook.
- Press **TARE** key. Zero is displayed, and tare is subtracted. And NET indicator will be on.
- Remove weight from the hook. Tared weight is displayed. It can set only one tare value. It will be shown with a minus value.
- Press **G/N** to change between gross weight and net weight.

Clearing tare

- To clear the tare value, remove the load from the hook.
- Press **TARE** key. Zero is displayed, the NET indicator off ,tare weight is cleared.

5.4 Select Weighing Units

- Load the weight on the hook, Example: display show 0.8 kg
- Hold **SLEEP** key for 3 seconds in normal weighing mode.
- The weight will be convert to **t** unit ,the indicator of left side display will appear, Example: display show 0.0008 t
- Hold **SLEEP** key again to back to kilogram mode.

5.5 Overload Warning

Please do not add item that is over the maximum capacity. When reading “--ol--” , remove the item on the hook to avoid damage to the load cell.

5.6 Sleep Mode

- Press **SLEEP** key to enter sleep mode in normal weighing mode, the display only show sleep indicator when in sleep mode;
- Press **SLEEP** key again ,display will be back to normal weighing mode.

5.7 Auto Power Off Setting

It can set auto power off the crane scale, when scale not in use, scale will turn off after the setting time. If want to enable the function,please see parameter **F9 OF**

- Press **TARE** key to select the options;
- Press **ZERO** key to confirm;
- Press **G/N** key to escape from the settings.

<i>F9 OF</i>	Of 0	To set auto off function turn off, for scale always on
	Of 5	Set to turn off 5 minutes later
	Of 10	Set to turn off 10 minutes later
	Of 20	Set to turn off 20 minutes later
	Of 30	Set to turn off 30 minutes later

5.8 Back Light Setting

It can set back light when scale in use.

- Hold **ZERO** key ,the display will be show **bk au**;
- Press **TARE** key to select the options;
- Press **ZERO** key to confirm;

<i>bk AU</i>	To set auto option. When start to use back light will be on and when stop the operation back light also will off.
<i>bk on</i>	To set always on. After turn on the power, back light also will be on.
<i>bk OF</i>	To set back light turn off. No back light in the operations

Note:If the battery gets low,the backlight function will not be available

5.9 Remote Controller

TN series crane scale can order remote controlled, you can find 4 keys at the remote controller. the function is same with the crane scale except ON/OFF key.

Please pull out the antenna before operate the remote controller.The remote controller operate distance is around 20m, but it's depends on the operate environment.

The red LED must light up when any button is pressed. If it does not light up, the batteries in the remote control must be exchanged.

5.10 Overload Records

- Please do not add item that is over the maximum capacity. When reading show “---ol---” and hear beeping sound, remove the item on the hook to avoid damage to the load cell.
- Once overloaded, the overload records will be recorded, see parameter F10 OVER

5.10.1 Check Overload Records

- Turn on the scale.
- Press **TARE** key during that start up until display will be shown P1---
- Then input password, the default password is 000;
- Press **G/N** key to move the active digit, press **TARE** key to increment a digit; press **ZERO** key to confirm, Display will show “F0 cal” ;
- Press **TARE** key until display show F10 OVER;
- Press **ZERO** key to confirm, the display will be show the overload number ;
- Using **TARE** key to select the overload number option;
- Press **ZERO** key to confirm, the date、time and the overload weight will be show in turn;

5.10.2 Delete Overload records

5.10.2.1 Delete the single overload record

- Turn on the scale, press **ZERO** key during self-checking and then display will be come to the normal weighing mode;
- Press and hold **G/N** key for 2 seconds, the overload number will appear;
- Press **TARE** key to select the records number to be delete;
- Press **ZERO** key to delete the overload record you select, and the display will be show “delete” words, 2 seconds later, display will come to the normal weighing mode.

5.10.2.2 Delete the all overload records

- Turn on the scale, press **SLEEP** key during self-checking and then display will be come to the normal weighing mode,
- Press and hold **G/N** key for 2 seconds, the display will be show “delete” words
- 2 seconds later, display will come to the normal weighing mode. All overload records will removed from the scale.

5.11 Bluetooth Operation (optional)

It can set Bluetooth communication with scales, For settings, see the parameter

F5 com > mode > BLUE

Set Communication F5 com > mode > BLUE

F5 com > BAUD > 9600

- Turn on all device
- Scale should be in the allowed limits of the distance (10 meters) to connect Bluetooth.

- Search the new Bluetooth device in the PC.
- Select the device. If ask password, enter 1234


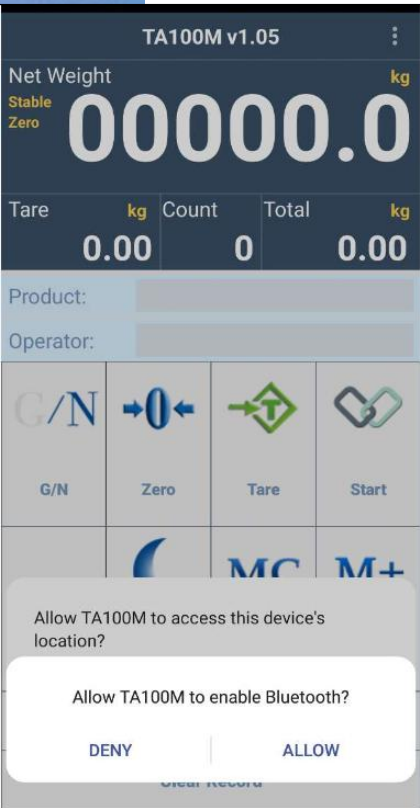


If connected with Bluetooth successfully, the Bluetooth indicator in the display will be on.

5.12 APP Software Operation In Android Mobile Operating System (optional)

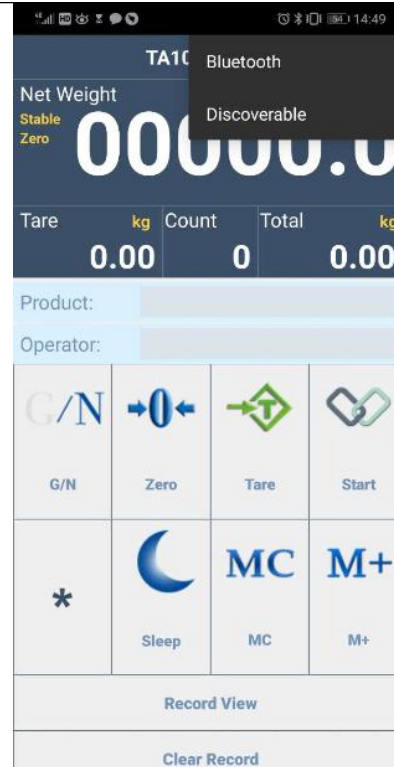
File Name: app-release.apk

Operating System: support Android 4.4 or above.

5.12.1. Install TN APP software in your android smart phone

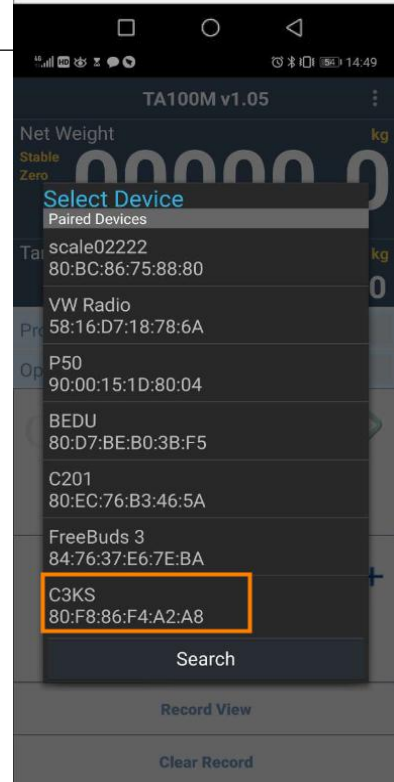
1. Click the TA100M icon to run the App	
2. A prompt to enable Bluetooth will be pop up	
3. Touch ALLOW key to turn Bluetooth on in your mobile	
4. The Bluetooth indicator will be on	

5. Click the icon in the right top of corner of the screen to select Bluetooth to pair with crane scale











6. If using in the first time, it needs to search the device to pair with your mobile phone. The Bluetooth name consists of 4 alphanumeric characters, it is marked on the Bluetooth model. If necessary, you can open the housing to check.

7. Select the device to pair. It may be asked to input the password. The default password is 1234.


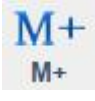



5.12.2.Keys Function

Keys	Description
	Used to shift the gross weight and net weight.
	Used to make display back to zero. When the hook is empty, but display is not zero, press this key to make display zero. Please only press this key when stable indication on.
	Used to do tare operation. When hook is not empty, you want to make display to zero and then show you net weight, just press this key. After press this key, net indication on. Please only press this key when stable indication on.
	Touch key to connect the scale to start to use
	Reserved key
	Sleep mode key ,Used to enter sleep mode in normal weighing mode.
	Used to clear the accumulation memory
	Used to add the value to the accumulation memory

Note:The accumulation memory is not to be regarded as an approved weighing result.

5.12.3.Weighing Operation

- Before do weighing operation,touch  key to connect with scale to use
- Once connected successfully,it will be heard a “beep” sound
- Meanwhile,the scale can be controlled by the “TA100M” App to perform the keys function as per the scale
- Input the product name and operator in the blank field
- Load the weight to the hook,tap the  key to add to accumulation memory,and saved to the weighing record
- Touch  key to check the weighing records

7 The weighing records will be show

T-Scale SEND RECORD			
No	Date	Product	Operator
1	20-07-20 15:53		
2	20-07-20 15:53	Screw	Ada
3	20-07-20 15:53	Screw	Ada
4	20-07-20 15:53	Screw	Ada
5	20-07-20 15:53	Nut	Ada
6	20-07-20 15:53	Nut	Ada
7	20-07-20 15:53	Nut	Ada

8 Tab each weighing record can see the detail weighing data for the product

T-Scale	
No:	2
Net weight:	659kg
Tared weight:	0kg
Product:	Screw
Operator:	Ada
Date:	20-07-20 15:53

9 Tab **SEND RECORD** key ,the weighing record can be sent to PC via E-mail or other chat tools in csv.file

A	B	C	D	E	F	G
No.	Net Weight	Tared Weight	Product	Operator	Date	
1	53.2kg	0.0kg			2020/7/20 10:27	
2	53.2kg	0.0kg	Screw	Ada	2020/7/20 10:27	
3	53.3kg	0.0kg	Screw	Ada	2020/7/20 10:27	
4	53.4kg	0.0kg	Screw	Ada	2020/7/20 10:28	
5	53.5kg	0.0kg	Nut	Ada	2020/7/20 10:28	
6	53.6kg	0.0kg	Nut	Ada	2020/7/20 10:29	
7	53.7kg	0.0kg	Nut	Ada	2020/7/20 10:29	

8 Tab **Clear Record** key ,the weighing record will be cleared

5.13 WIFI Operation (optional)

It can set WIFI (optional) function, For settings, see the parameter

F5 com > mode > WIFI>ON

The following steps only for testing the WIFI communication,please as reference

1)Enter parameters to set Communication F5 com > mode > WIFI >on

F5 com > BAUD > 9600

Scale should be in the allowed limits of the distance (10 meters) to connect WIFI.

If connected with WIFI successfully,the WIFI indicator in the display will be on.

2) Search the new WIFI network named “Doit_WiFi_xxxxxx,” in the computer

3) There is no need to input password , click the new WIFI network to connect directly .

4) Input the IP address <http://192.168.4.1> in the browser,the WIFI basic setting information will be show

STATUS	MODULE	MORE
Mac Address	60-01-94-8D-6E-32	
Station IP Address	192.168.50.112	
Wi-Fi Status	connecting	
SoftAP IP address	192.168.4.1	
System Running Time	0 days 00:00:52	
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5) Select MODULE >WIFI to settings as follows

WIFI : AP+STA

AP: Enable

STA:Enable

DHCP:Disable

6)Select the wireless router name from the SSID list and input the wireless router password

7)Assign IP address of the scale

Note:The IP address of scale and wireless router should be in the same network

8)Click save key to confirm

Soft AP Settings

☒ Enable ☐ Disable

SSID Name: Doit_WiFi

Password: 8-63 ASCII chars or spaces

SoftAP IP: 192.168.4.1

SoftAP netmask: 255.255.255.0

SoftAP gateway: 192.168.4.1

Station Settings

☒ Enable ☐ Disable

SSID name: Doit_WiFi_96607B

SSID list: TS-Guest_2.4G

Password: Wireless Router Password

☐ Enable DHCP ☒ Disable DHCP

Assign IP address: 192.168.50.112

Assign Netmask: 255.255.255.0

Assign Gateway: 192.168.1.1

Save

9) Select MORE >Restart option to restart the WIFI and click Return to confirm

If finish the configuration, you can start to test the WIFI communication

Wi-Fi Setting

192.168.4.1/status.html

STATUS **MODULE** **MORE**

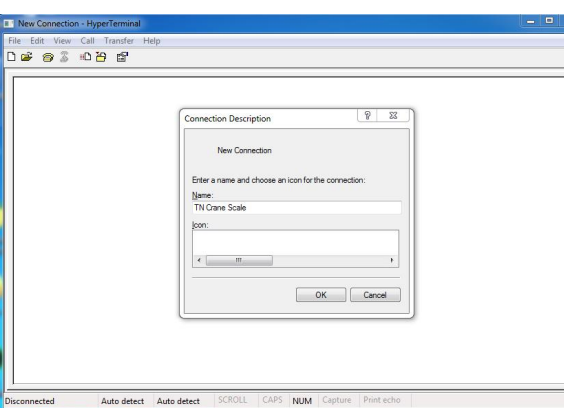
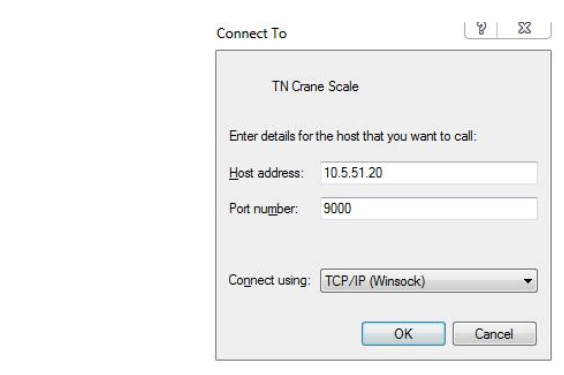
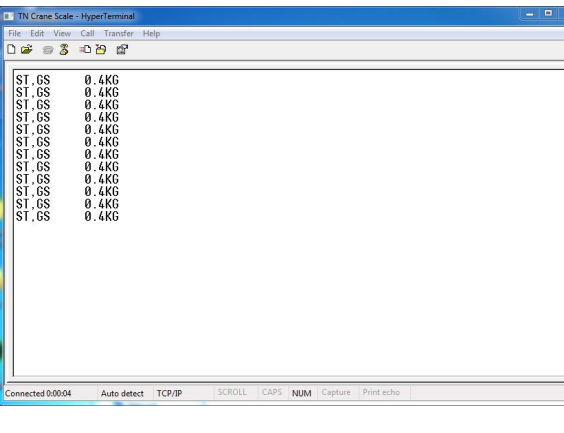
Mac Address: 60-01-94-83-09-4E

Station IP Address: 0.0.0.0

Restart

Restore

Version

<p>10)Open the Hyper Terminal in computer</p> <p>11)Create a new connection and enter a name for the connection</p>	
<p>12)Enter the host address and port number</p> <p>The host address is the IP address of scale</p> <p>The default port number is 9000</p>	
<p>13) Click OK key ,the weighing data will be show</p>	

6. PARAMETERS

6.1 PARAMETER SETTING

Enter the Menu

- Turn on the scale.
- Press **TARE** key during that start up until display will be shown P1---;
- Then input password,the default password is 000;
- Press **G/N** key to move the active digit;
- Press **TARE** key to increment a digit;
- Press **ZERO** key to confirm, display will shows “F0 cal”, scale enter setting mode

Enter the Selected Menu

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

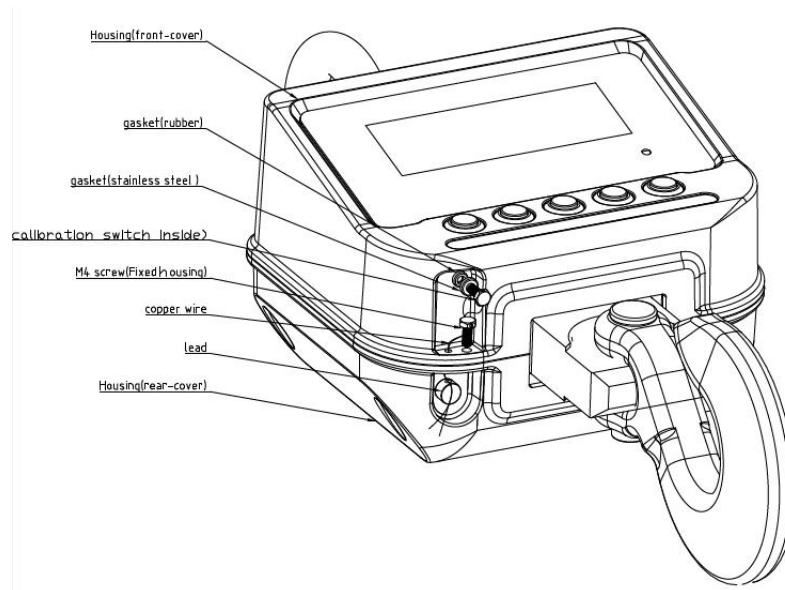
Select the Menu

- Press **TARE** key, it can choose menu block one by one.

Escape from the Menu

- Press **G/N** key to escape from the setting menu.

To access the technical parameters,it's required to press the calibration switch, switch is locating below the housing.



6.2 Menu Block

Menu	Description			
F0 CAL	Calibration			
F1 CAP	single	600	To select the capacity	
		1500		
		3000		
		6000		
		12000		
F2 SP	Slow		Set AD speed	
	Mid			
	Fast			
F3 INP	To show the internal counts			
F4 GRA	Set your local gravity value.			
F5 COM	mode	Blue		Bluetooth communication mode
		WIFI	ON	To enable WIFI communication
			OF	To disable WIFI communication
		Off		Communication port function off
	baud	600		Baud rate selection
		1200		
		2400		
		4800		
		9600		
F6 TI	00:00		Set time	
F7 DA	00.00.00		Set date	
F8 ST	on		Multi-tare function on	
	off		Multi-tare function on	
F9 OF	Set automatic turn off the scale			
	0		Auto off function disable	
	5		Scale will be auto off 5 minutes later	
	10		Scale will be auto off 10 minutes later	
	20		Scale will be auto off 20 minutes later	
	30		Scale will be auto off 30 minutes later	
F10 OVE			To view the counts of overload	

7. CALIBRATION

- 1) Press **ON/OFF** key to turn **ON** the Scale;
- 2) Press **TARE** key during that start up until display will be shown **P1---**;
- 3) Then input password,the default password is **000**;
- 4) Press **G/N** key to move the active digit;
- 5) Press **TARE** key to increment a digit;
- 6) Press **ZERO** key to confirm, display will shows "**F0 cal**";
- 7) Press calibration switch ,the switch is locating below the housing;
- 8) Press **ZERO** key to enter calibration, display shows "**Unload**";
- 9) Empty the hook,when the [▼] indicator above STABLE appears, press **ZERO** key to confirm,display will show calibration weight value;
- 10) You can change this weight value, using **SLEEP** key to clear the active digits ,
using **G/N** key to move the active digit right,using **TARE** key to increment a digit;
- 11) Press **ZERO** key to confirm;
- 12) Display show "**LOAD**", add calibrate mass weight on the hook.
- 13) When the [▼] indicator above STABLE appears ,press **ZERO** key to confirm,display show "**PASS**" ,it will be self-checking and back to normal weighing mode.

If display show any error message,please re-calibrate the scale again.

8. BLUETOOTH _WIFI PROTOCOL

8.1 Specifications

Bluetooth output of weighing data

Code : ASCII

Baud rate : 600bps to 9600bps selectable

8.2 Continuously output protocol

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
S	Z	G	<20>							K	G	/	T							K	G	<CR>	<LF>
U	Z	N	-								T	/	T								T	<CR>	<LF>
				Weight value										Tare value									

S: Stable; U: Unstable; G:Gross Weight ; N: Net Weight ;Z: Non-sleep mode ;
 D: Sleep mode; -: Negative symbol, <20> : Space, Weighing units: kg or t ,/T:Tare
 <CR> <LF>: CRLF

No.	Description
1	Weighing data status (stable or unstable)
2	Sleep mode status
3	Weight (Gross/Net)
4	Negative or Positive ,if the data is positive,the first byte is instead of space
5~10	6 bits ;Weight including decimal point,space will be filled in when the weight bytes are less than 6 bytes
11~12	Weighing unit
13~14	Separated by symbol </ T>
15~20	6 bits;Tared weight including decimal point,space will be filled in when the weight bytes are less than 6 bytes
21~22	Weighing unit
23~24	Terminator,terminated by windows-style newline characters

ASK Command

Command	Description	Command	Description
T/t	TARE	D/d	Sleep mode
Z/z	ZERO	M/m	Accumulation
S/s	Send weight continuous	C/c	Accumulation memory clear
G/g、N/n	Net/gross weight shift		

9. TECHNICAL DATA

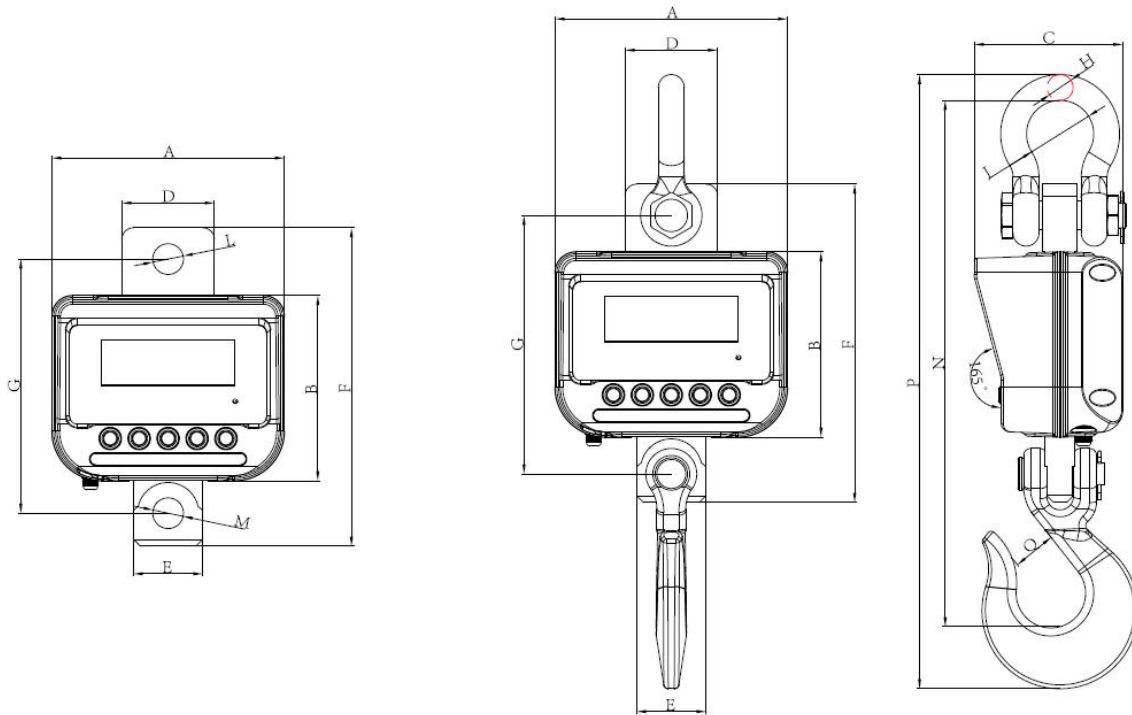
9.1 General Specification

MODEL	TN-M-600	TN-M-1.5	TN-M-3	TN-M-6	TN-M-12
Maximum Capacity	600 kg	1.5t	3 t	6 t	12 t
Minimum Capacity	4 kg	10 kg	20 kg	40 kg	100 kg
Readability	0.2 kg	0.5 kg	1 kg	2 kg	5 kg
Max. Divisions	1/3000				
Tare range	-599.8 kg	-1499.5 kg	-2999 kg	-5998 kg	-11995 kg
Linearity \pm	0.2 kg	0.5 kg	1 kg	2 kg	5 kg
Weighing Units	kg/t				
Display	6 digits 30mm LCD digital display				
Housing	Die-casting Aluminum				
Optional	WIFI/Bluetooth				
Operation Temperature	-10°C - + 40°C				
Power	Input: AC100-240v 50~60Hz, Out put: DC 12V/2500mAh Standard rechargeable Battery (7.4V/5200mAh) Battery Name: Li-ion Battery Battery Mode: 18650/2S2P/5200mAh/7.4V Battery Cell: 18650/2600mAh/3.7V Battery Shelf Period: 1 year				
Battery life	Approx. 60 Hours (with backlight) Approx. 72 Hours (without backlight)				
Remote Controller	Alkaline Battery 12V/23A Dimension (W X D X H) 48 X 16 X 95 mm				
Keypad	5 mechanical keys				
IP Protection	IP65				
Dimensions (W x D x H) mm	201 x 128.5 x 477	201 x 128.5 x 477	201 x 128.5 x 532	201 x 128.5 x 624	201 x 128.5 x 660
Net weight	8.52 kg	8.52 kg	9.88kg	17.04kg	20.01kg
Gross weight	10 kg	10 kg	11.5 kg	18.5 kg	21.5 kg

9.2 Battery Specification

NO	Items	Parameter	Remarks
2.1	Rated Capacity	5200mAh	Discharge:0.2C cut-off voltage:2.75V
	Minimum Capacity	5000mAh	
2.2	Energy	38.48 Wh	
2.3	Nominal Voltage	7.4V	
2.4	Open Voltage	7.6V~8.2V	
2.5	Load Voltage	≥7.4V	10Ω
2.6	Internal Impedance	≤250mΩ	AC 1KHz after standard charge
2.7	Charge voltage	8.4V	
2.8	Standard charge current	2600mA	0.5C
2.9	Max charge current	2600mA	0.5C
2.10	Standard discharge current	1040mA	0.2C
2.11	Max discharge current	2600mA	0.5C
2.12	Discharge cut-off voltage	5.5V	
2.13	Operating Temperature	0~+45℃	Charge
		-20~+60℃	Discharge
2.14	Storage Temperature	-20℃~+60℃	Less than 1 month

9.3 Overall Dimension

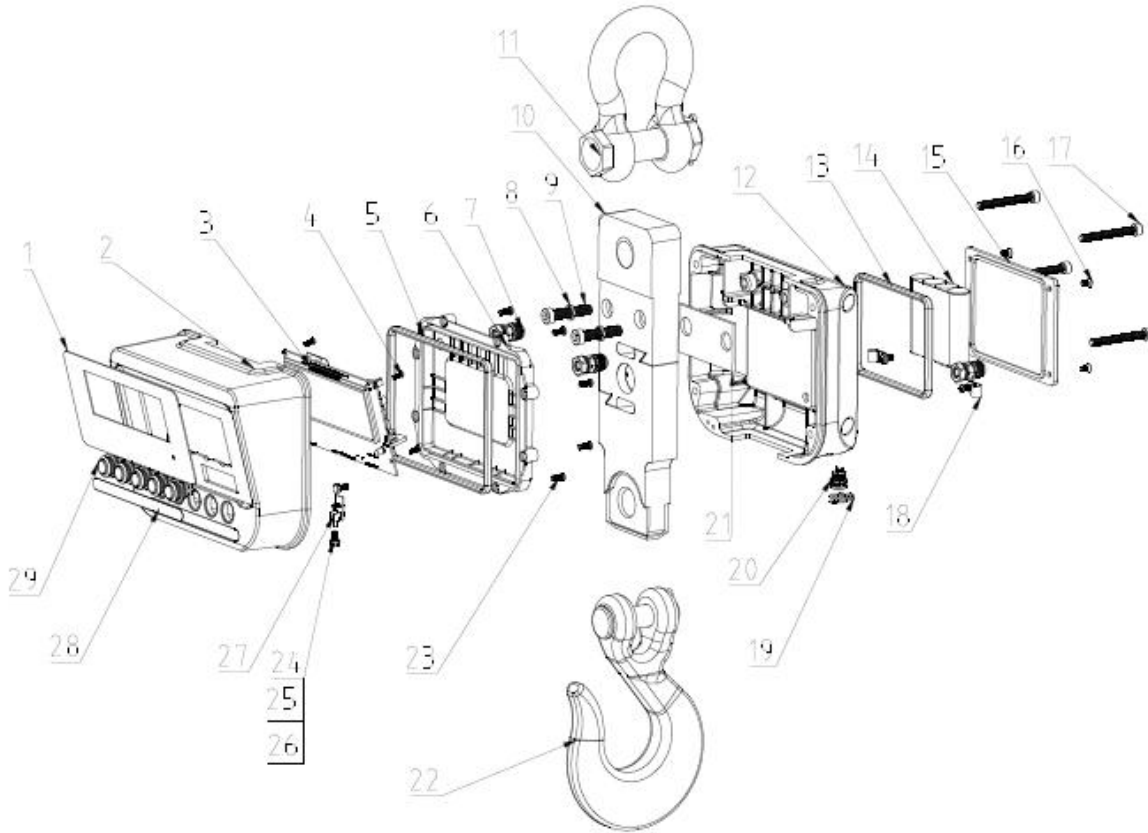


CAP (mm)	600kg	1.5T	3T	6T	12T
A	201	201	201	201	201
B	160	160	160	160	160
C	128.5	128.5	128.5	128.5	128.5
D	80	80	80	95	95
E	60	60	60	80	80
F	270	270	275	320	330
G	219	219	219.5	248	247.5
H	Φ 19	Φ 19	Φ 22	Φ 25.4	Φ 31.8
J	Φ 50.8	Φ 50.8	Φ 58	Φ 68.3	Φ 82.5
L	Φ 23	Φ 23	Φ 26.5	Φ 30	Φ 36
M	Φ 23	Φ 23	Φ 26.5	Φ 30	Φ 36
N	415	415	456	528	557
P	477	477	532	624	660
Q	42.9	42.9	50.8	63.5	63.5

10. ERROR CODES

Error Message	Description	Solution
Err 4	Zero setting error	Zero setting range exceeded due to switching on.(4%max) Make sure platform empty.
--ol--	Over range	Remove the load. Re calibrate
LO-BAT	Low battery indicator	Please charge the battery
Fail	Calibration Error	Check the test weights & Re calibrate
Err 17	Tare out of range	Minus weight or overload. Remove the load and restart scale again.
Err 6	A/D value out of range	Make sure platform empty and check the pan is installed proper. Check the load cell connectors.

11. EXPLODER DRAWING



Parts list

No	Name	QTY	Material	SPEC
1	Overlay	1		
2	Front cover	1	AL	
3	Main board	1		
4	"+" round screw	4	Carbon Steel	M3*8
5	Seal ring	1	NBR	
6	Rear cover	1	ABS	
7	Waterproof gland	3		M10
8	Spring Washer	2	Carbon Steel	M8
9	Internal hexagon screw	2	Carbon Steel	M8*40
10	Load cell(600kg/1.5t/3t)	1		
11	Round pin	1	Carbon Steel	
12	Back cover	1	AL	

13	Seal ring	1	NBR	
14	7.4V/5200MA Li battery	1		
15	Battery cover	1	AL	
16	“+” screw	4	Carbon Steel	M4*8
17	Internal hexagon screw	4	Carbon Steel	M6*55
18	Cabel gland	2	PE	
19	Adaptor plug	1		
20	Adaptor socket	1		
21	Washer	1	SUS304	
22	Hook	1	Carbon steel	
23	“+” screw	2	Carbon steel	M4*10
24	Hexagon screw	2	Carbon steel	M4*10
25	Seal washer	1	NBR	
26	Seal washer cover	1	SUS304	
27	Calibration switch	1		
28	Overlay	1		
29	M6 Mental Button	5		

12. HANDLING INSTRUCTIONS

Read and observe the following warnings and precautions to ensure correct and safe use of Li-ion batteries.

Danger!

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat such as a fire or heater.
- Do not use any chargers other than those recommended.
- Do not reverse the positive (+) and negative (-) terminals.
- Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive (+) and negative (-) terminals.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- Do not strike, throw or subject the battery to sever physical shock.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.
- Do not place the battery in a microwave oven or pressurized container.
- Do not use the battery in combination with primary batteries (such as dry-cell batteries) or batteries of different Capacity type or brand.
- Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.

Caution!

- Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.
- If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.
- Use the battery only under the following environmental conditions. Failure to do so can result in reduced performance or a shorten service life. Recharging the battery outside of these temperatures can cause the battery to overheat, explode or catch fire.
- Operating environment:
- When charging the battery: $0^{\circ}\text{C} \sim 45^{\circ}\text{C}$
- When discharging the battery: $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$
- When stored up to 30 days: $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$
- When stored up to 90 days: $-20^{\circ}\text{C} \sim 30^{\circ}\text{C}$

The company was founded in Taiwan in 1967 as Taiwan Scale Mfg Co., Ltd in order to produce Mechanical Weighing Instrument. Today, this privately owned company is recognized worldwide as a leading Electronic Weighing Scale Manufacturer. The core business of TSCALE is the development, manufacture, worldwide sales/marketing and service of electronic weighing instruments.

The TSCALE products

- Medical Scale
- Counting Scale
- Tabletop Scale
- Retail Scale
- Precision Scale
- Platform Scale
- Weighing Indicator
- Crane Scale
- Floor and Pallet Scale
- Accessory
- Software

TSCALE has its manufacturing unit in Kunshan, China, ISO 9001 certified company, **OEM/ODM** partner, more than 20 products have **OIML** certifications from Holland's NMI and Denmark's Delta.

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