



T3_(Wireless)

Weighing Display Controller

OPERATION MANUAL

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Chapter I General Information

1. Overview

The weighing instrument adopts advanced single-chip technology, 20-bit sigma-delta A/D converter design. It has benefits of high speed conversion, high precision, powerful and outstanding for its functions and long-term stability.

2. Characteristics

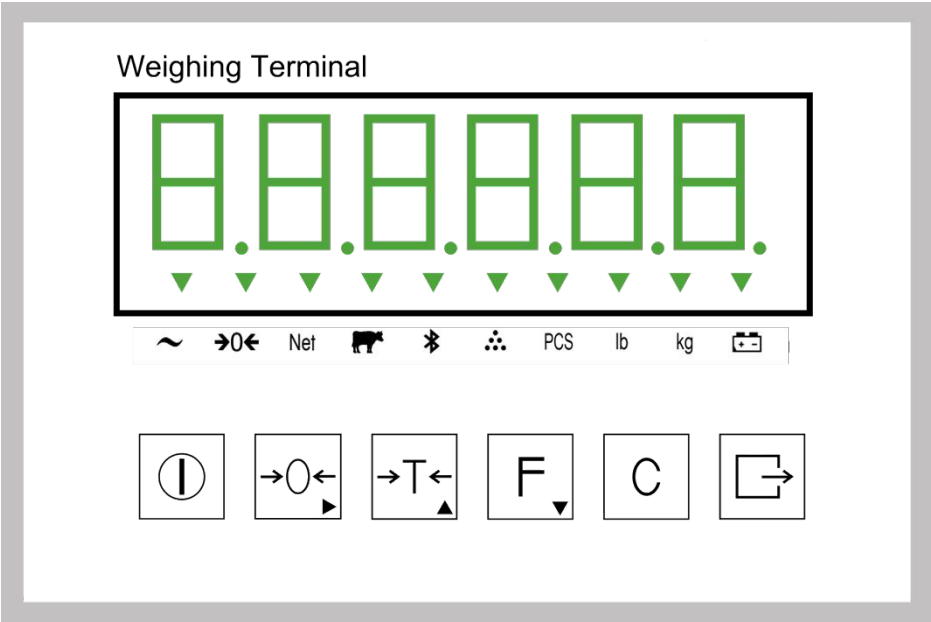
- 1-6 levels digital filtering combined with T3.0 version of stability program makes weighing fast and stable;
- With animal weighing function;
- With automatic counting function;
- With manual accumulative and automatic accumulative functions;
- Automatic detection of battery power, with low voltage alarm function.

3. Technical Performance

- Input signal range: $-19\sim+19\text{mV}$
- Nonlinear: $\leq 0.0015\%\text{F.S.}$
- Gain error drift: $1\text{ppm}/^{\circ}\text{C}$
- Excitation voltage: $\text{DC}5\text{V}/300\text{mA}$
- Minimum resolution: $0.1\mu\text{V}/\text{d}$
- Display divisions: $\leq 100000\text{d}$
- Display: 6-bit 1.2-inch ultra bright LED display
- Serial communication interface: 2 RS232, RS485
- Baud rate: 1200/2400/4800/9600 bps optional
- Operating temperature: $-10\sim+40^{\circ}\text{C}$
- Relative humidity: $\leq 85\%\text{R.H}$
- Power supply: AC87-242V/0.2A, built-in 6V/4.5Ah lead acid battery
- Overall dimension: $250\times 170\times 155\text{mm}$
- Weight: 1.4kg
- Number of verification scale interval: 6000

Chapter II Basic Indicator Structure

1. The front panel



(1) Button definition



Power on/off



Zero



Tare



Function



Clear

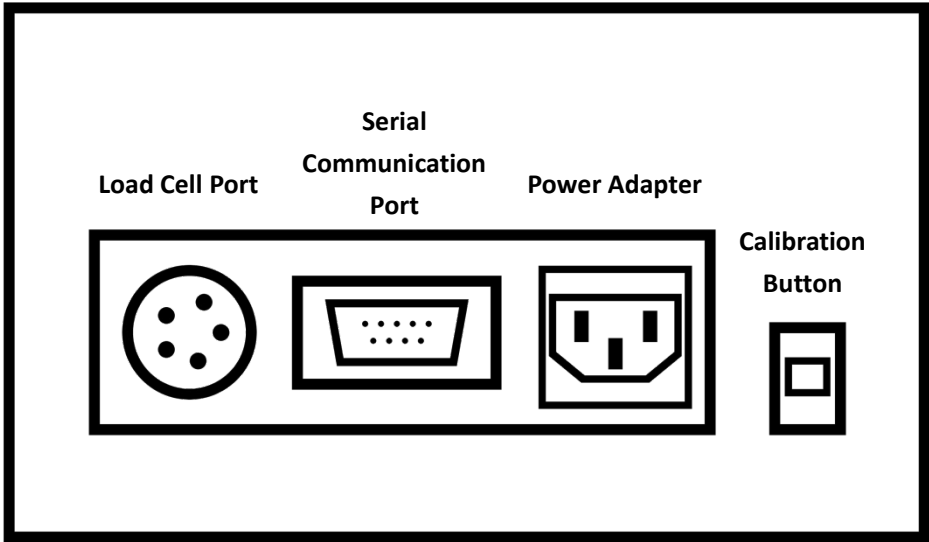


Enter

(2) Indicate light definition

AC	AC power	~	Stable
Gross	Gross weight	Net	Net weight
ZERO	Set to zero	Count	Counting
PCS	Sample quantity	lb	Weight unit is lb
kg	Weight unit is kg		Battery symbol light

2. The back shroud & port definition



(1) Load Cell Interface

(5-pin aviation socket)

Pin	1	2	3	4	5
Def.	+E	-E	+S	-S	-

- +E: connect with excitation voltage positive of load cells
- E: connect with excitation voltage negative of load cells
- +S: connect with output signal positive of load cells
- S: connect with output signal negative of load cells

(2) Serial Communication Port

(DB-9 pin connector)

Pin	3	5	6	7	8	1	9
Def.	TXD	GND	RXD	TXD	GND	A	B
Name	RS232/printer		RS232			Rs485	

(3) Modbus communication protocol

Register address	Function code	Instruction	Notes
4000H	03H	Gross weight	4 bytes read only
4002H	03H	Tare weight	4 bytes read only
4004H	03H	Net weight	4 bytes read only
4006H	06H	ZERO	FF01H
4006H	06H	TARE	FF02H
4006H	06H	CLEAR TARE	FF03H

3. The Function Setting code and definition

Menu	Display code	Definition
Set0		Set date/time
Set1	F2.0	Set printing format
	F2.1	01 RS232 baud rate
	F2.2	01 RS232 communication protocol
	F2.3	02 RS232 baud rate
	F2.4	02 RS232 communication protocol
	F3.0	Set accumulative method
	F3.1	Set power saving model
	F4.0	Set Weighing function
CAL1	d	Set division
	dC	Set decimal point
	-----	Set capacity (scale range)
	FLt	Set filtering level
	F1.0	Set zero point tracking speed
	F1.1	Set zero point tracking range
	F1.2	Set Boot zero setting range
	F1.3	Set zero setting range
	F1.5	Set calibration mode
	F1.6	Weighing state selection

	F1.7	Kg/lb weight unit selection
CAL2		Weight calibration
CAL3		Compensation calibration

Chapter III Basic Panel Operation

1. Power On and Shutdown

Under the shutdown state, hold on  for 1 second, the instrument enters into the self-testing procedure, the display successively shows [000000] to [999999] and the voltage of built-in battery, and then the screen displays [-----]. After a few seconds, the instrument enters into the weighing state and automatically executes the boot reset procedure.

In the boot state, hold on  for a few seconds and display [OFF] for 1 second, the instrument will automatically shut down.
when the battery is about to run out, the battery symbol light on the instrument display screen will turn to red. At this time an external power supply need to be connected as soon as possible , and the instrument will charge the built-in battery at the same time, the battery symbol indicator light will flash red. When it finishes the charging, the battery symbol light remains green, otherwise the instrument will automatically shut down when the battery is exhausted.

2. Zero

◆ Automatically set to zero when power on

After the instrument is turned on, it will automatically execute the boot zero-setting procedure. If the weight is within the zero-setting range, the instrument will be automatically zeroed; otherwise, the automatic zero-setting procedure will be skipped.

◆ Press button to set zero

After pressing , if the weight is within the button zero-setting range, the instrument will be automatically zeroed; otherwise, the automatic zero-setting procedure will be skipped.

❖ The boot zero-setting range and the button zero-setting range are set during the procedure of calibration debugging.

3. Tared Operation and Clean Tare Weight

◆ Tared operation

In weighing state, the gross weight is greater than 0, press , the instrument will take the current gross weight value as the tare weight value, store it in the tare weight unit, and display the net weight value, and the [NET] indicator light will be on.

◆ Clean tare weight

Under the tared state, press , the instrument will automatically clean tare weight and display gross weight, the [NET] indicator light will be off.

4. Cumulative Weight (effective if F4.0=0)

◆ Manual accumulation (effective if F3.0=0)

In the weighing state, when the net weight value is greater than 0, press , the instrument will automatically accumulate the current net weight value to the net weight value accumulation unit for storage, and the instrument will return to the weighing state after displaying the number of accumulated times [n xxxx] for 1 second. One time weighing can only be accumulated once. The next accumulation can only be performed after the net weight returns to 0. When F2.0=1-2, the instrument will print the weight at the same time.

◆ Automatic accumulation 1 (effective if F3.0=1)

In the weighing state, when the weight is greater than 20d, the weight will be automatically accumulated to the accumulative unit for storage after the weight value is stable, the instrument will display the number of accumulated times [n xxxx] and the buzzer will beep at the same time, and it will return to the weighing state after 1 second. One time weighing can only be accumulated once. The next accumulation can only be performed after the weight returns to less than 20d. When F2.0=1-2, the instrument will print the weight at the same time.

◆ Automatic accumulation 2 (effective if F3.0=2)

In the weighing state, when the weight is greater than 20d and then returns to

less than 20d, the instrument automatically accumulates the last stable weight to the accumulative unit for storage, and the instrument will display the number of accumulated times [n xxxx] and the buzzer will beep at the same time, and it will return to the weighing state after 1 second. One time weighing can only be accumulated once. When F2.0=1-2, the instrument will print the weight at the same time.

5. About Number of Cumulative Times and Weight

◆ Number of cumulative times and weight display (effective if F2.0=0)

In the weighing state, press , the instrument will display number of weighing times [n xxxx] for 1 second and it will show cumulative weight. After 2 seconds, it will return to the weighing state.

◆ Number of cumulative times and weight print (effective if F2.0=1-2)

In the weighing state, press , the instrument will print number of weighing times [n xxxx] and cumulative weight.

◆ Clear number of cumulative times/weight

In the weighing state, press , the instrument will display [yorn] and jump into the clean procedure. Press  to clean number of cumulative times and cumulative weight storage unit and automatically back to the weighing state; or press  to exit the clean procedure and back to the weighing state.

6. Power Saving Mode (effective if F3.1=1)

The weight will always be displayed under the dynamic mode, and it will enter the power saving mode after more than 20 seconds in the steady state. Once there is any key operation or changes of the weight value, the instrument will automatically exit the power saving mode.

7. Matching and modify wireless channel function

NO.	Button	Display	Introduction
1	 and 	Ch 1	Make sure the transmission box and indicator are all power on first, long press  and  for 2 seconds until it displays the chaneel number “CH 1”, the first digit on the left flashes, press
	 / 	Ch 3	
			
	 /  / 	C 20	C 20 is the indicator channel, the number is up to 66 channels
			
	 /  / 	n 20	n 20 is the transmission box channel no, It is up to 66 channels
			
2			Back to the weighing state

8. Counting Function (effective if F4.0=1)

Counting sampling (when the counting indicator light and weight unit indicator light are on, and PCS indicator light is off)

NO.	Button	Display	Introduction
1		P 200	In the weighing state, after loading weights and the displayed value is
	/ /	P 20	stable, press for 2 seconds to
			input number of setting, the first digit on the left flashes, press or or to input number E.G. the number of samples is 020
2			Back to the weighing state

In the counting state, press , to switch between weight and quantity.

9. Function Setting

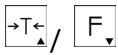
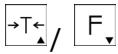
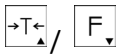
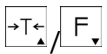
(1) Date/Time Setting (Set=0)

NO.	Button	Display	Introduction
1		SET X	In weighing state, press and hold for 2 seconds, release the button until displaying [set x]
	/	SET 0	SET=0, to change date/time

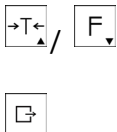
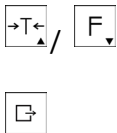
2	 /  /  	XX.XX.XX 24.09.25	Input date YY/MM/DD E.G. Set current date as 24.09.25
3	 /  /  	XX.XX.XX 12.30.00	Input time E.G. Set current time as 12.30.00
4			Back to the weighing state

(2) Parameter Setting (Set=1)

NO.	Button	Display	Introduction
1	  /  	SEt X SEt 1	In weighing state, press and hold  for 2 seconds, release the button until displaying [set x] Choose Set=1
2	 /  	F2.0 X F2.0 2	Interface printing selection: 0-2 F2.0=0-2; 0-not print 1-record format printing 2-multiple format printing E.G. F2.0=2; select multiple format printing

2.1	 	P X P 1	Multiple format printing selection (effective when F2.0=2) P=1-3 E.G. P=1
2.2	 	n XX n 04	Empty line section: n=00-99 E.G. n=04
3	 	F2.1 X F2.1 3	Serial port RS232 Baud rate selection: (effective when F2.0=0): F2.1=1-4; 1-2400bps, 2-4800bps, 3-9600bps, 4-19200bps, E.G. F2.1=3; baud rate is 9600bps
4	 	F2.2 X F2.2 6	Serial port RS232 Communication format selection (effective when F2.0=0): F2.2=0-6; 0-Hengtian, 1-Toledo 8142-07, 2-Toledo Jinniao 17-bit, 3-Yaohua A9, 4- Keli ZXFS, 5-GSE, 6-EXCELL/FORMAT1 E.G. F2.2=6
		F2.2.1 X F2.2.1 0	Method of transmission: F2.2.1=0-2; 0-Continuous transmission 1-Stable transmission. 2-Press the input key to send.

			E.G. F2.2.1=0 Continuous transmissio
5	 /  	F2.3 X F2.3 3	RS485 Baud rate selection: F2.1=1-4; 1-2400bps, 2-4800bps, 3-9600bps, 4-19200bps, E.G. F2.3=3; baud rate is 9600bps
6	 /  	F2.4 X F2.4 7	RS485 Communication format selection: F2.2=0-7; 0-Hengtian, 1-Toledo 8142-07, 2-Toledo Jinniao 17-bit, 3-Yaohua A9, 4- Keli ZXFS, 5-GSE, 6-EXCELL/FORMAT1, 7-MOSBUS-RTU E.G. F2.4=7
6.1	 /  /  	Adr XX Adr 01	Communication address setting (when F2.4=7): Adr=01-99 E.G. Adr=01
7	 /  	F3.0 X F3.0 0	Accumulation method selection: F3.0=0-2; 0-manual accumulation, 1-Automatic accumulation 1, 2-Automatic accumulation 2 E.G. F3.0=0; select manual accumulation
8		F3.1 X	Power saving mode selection: F3.1=0-1; 0-off, 1-on E.G. F3.1=0; turn off power saving

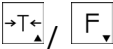
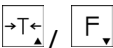
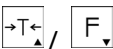
		F3.1 0	mode
9		F4.0 X F4.0 1	Weighing function selection: F4.0=0-2; 0-general weighing mode, 1-counting weighing mode E.G. F4.0=1; use counting weighing mode
10			Back to the weighing state

Chapter IV Calibration Mode

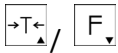
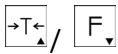
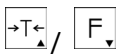
◆ Calibration Setting Flow chat (go to each step by pressing)

Before calibration debugging of the instrument, it is necessary to carefully check if the connection between the various parts is correct. If the connection has no problem, to open the calibration cover in the back cover and press calibration button lightly and the instrument will enter into calibration debugging state.

1. Parameter Setting

NO.	Button	Display	Introduction
1	  /  	CAL X CAL 1	In weighing mode, press calibration button in the back cover for 2 seconds and enter into calibration state and displays [CAL x] CAL=1 parameter setting CAL=2 weight calibration CAL=3 compensation calibration
2	 /  	d XX d 10	Weighing division: d=01, 02, 05, 10, 20, 50 E.G. d=10; weighing division is 10
3	 /  	dC X dC 0	Decimal point: dC=0-4; 0-0, 1-0.0, 2-0.00, 3-0.000, 4-0.0000 E.G. dC=0; reserved to single digits
4			Scale's range:

	 /  /  	000000 005000	The first digit on the left flashes, press  or  or  to input weight number E.G. scale's range is 50000kg
5	 /  	FLt X FLt 2	Filtering levels: FLt=1-4 (for animal weighing, please set FLt=2/3) E. G. FLt=2; filtering level is 2
6	 /  	F1.0 X F1.0 3	Zero point tracking speed: F1.0=1-9s E.G. F1.0=3s; zero point tracking speed is 3s
7	 /  	F1.1 X F1.1 2	Zero point tracking range: F1.1=0-9; 0-0.0d, 1-0.5d, 2-1.0d, 3-1.5d, 4-2.0d, 5-2.5d, 6-3.0d, 7-3.5d, 8-4.0d, 9-4.5d E.G. F1.1=2; zero point tracking range is 1.0d
8	 /  	F1.2 X F1.2 5	Boot zero-setting range: F1.2=0-5; 0-without zero, 1-2%, 2-4%, 3-20%, 4-50%, 5-100% E.G. F1.2=5; boot zero-setting range is 100%
9			Button zero-setting range:

	 	F1.3 X F1.3 5	F1.3=0-5; 0-without zero, 1-2%, 2-4%, 3-20%, 4-50%, 5-100% E.G. F1.3=5; button zero-setting range is 100%
10	 	F1.5 X F1.5 5	Calibration mode selection: F1.5=1; 1-5 stage nonlinear correction E.G. F1.5=2; select 2 stage nonlinear correction
11	 	F1.6 X F1.6 0	Weighing state selection: F1.6=0-1; 0-general weighing, 1-animal weighing E.G. F1.6=0; select general weighing
12	 	F1.7 X F1.7 0	kg/lb weight unit selection: F1.7=0-1; 0-kg, 1-lb E.G. F1.7=0; select kg
13		CAL 1	Back to the weighing state

2. Weight Calibration

NO.	Button	Display	Introduction
1		CAL X	In weighing mode, press calibration button in the back cover for 2 seconds and enter into calibration state and

	 /  	CAL 2	displays [CAL x] CAL=2 weight calibration
2		XXXXXX 000000	Display internal codes in empty scale, if display steady, press 
3		XXXXXX	Add standard weight G in weighing platform, if display steady, press 
4	 /  /  	000000 0 10000	The first digit on the left flashes, press  or  or  to input weight number Input standard weight G E.G. G=10000kg
5		CAL 1	
6		10000	Back to weighing status

3. Compensation Calibration

NO.	Button	Display	Introduction
1	  / 	CAL X CAL 3	In weighing mode, press calibration button in the back cover for 2 seconds and enter into calibration state and displays [CAL x] CAL=3 compensation calibration

2		XXXXXX	Add standard weight G in weighing platform, if display steady, press
3	/ / 	000000 0 10000	The first digit on the left flashes, press or or to input weight number Input standard weight G E.G. G=10000kg
4		[CAL 1	
5		10000	Back to weighing status

4. Multi-stage Weight Calibration (Set F1.5=2, 3, 4, 5)

NO.	Button	Display	Introduction
1	/ 	[CAL X [CAL 2	In weighing mode, press calibration button in the back cover for 2 seconds and enter into calibration state and displays [CAL x] CAL=2 weight calibration
2		XXXXXX 10 000000	Display internal codes in empty scale, after 2 seconds of the first stage weight calibration, it displays 0

3		XXXXXX	Add standard weight G1 in weighing platform, if display steady, press 
4	 /  /  	000000 0 10000	The first digit on the left flashes, press  or  or  to input weight Input standard weight G1 E.G. G1=10000kg
...	...	...	
11		40 050000	After 2 seconds of the fifth stage weight calibration, it displays weight value, add standard weight G5 in weighing platform, if display steady, press 
12	 /  /  	000000 050000	The first digit on the left flashes, press  or  or  to input weight Input standard weight G5 E.G. G5=10000kg
13		CAL 1	
14		50000	Back to weighing status

Chapter V Information Tips

1. Error Information

Display Content	Information
Err 01	no weights is loaded during calibration
Err 02	weight cannot be 0 when counting sampling

2. About Built-in Battery

The instrument is powered by a built-in 6V/4.5Ah battery, and the instrument will automatically charge the built-in battery when using AC power. After using the built-in battery for power supply, immediately to use the external power supply to charge the built-in battery, otherwise the built-in battery will be damaged. Once charge time should not be less than 6 hours nor more than 10 hours. Since the built-in battery will self-discharge, if the instrument is not in use, the built-in battery should be charged once every two weeks with the external power supply, so as to avoid damage to the built-in battery and permanent failure to charge. The battery is a consumable item and is not covered by the warranty.