

YH-T8

Weighing Indicator

User Manual

V 1.0

Shanghai Yaohua Weighing System Co.,
Ltd

YH-T8

Introduction

YH-T8 full stainless steel weighing indicator is applied for static weighing system equipped with 1~4 pieces of 350Ω load cell such as platform scale, floor scale.

Basic Function:

- 1 Single window, multi-function LCD display
- 2 Peak value hold function
- 3 Live-stock weighing function
- 4 External Serial printer interface
- 5 Multi-weighing-unit switch function
- 6 Manual and auto accumulative adding
- 7 Pre-set TARE function
- 8 Hi-low limit alarm function: HIGH-OK-LOW status indicating
- 9 Four level battery indicating, low battery alarm and auto-off function
- 10 Auto sleep and multi-level power saving mode
- 11 Multi-level back-light brightness adjustment
- 12 10 times of precision auto-zoom function
- 13 High-precision AD conversion, readability of 1/30000
- 14 Able to use 4 pieces of 5# Alkali dry battery or NI-MH rechargeable Battery
- 15 Able to use international certified AC adapter for power supply
- 16 Optional RS232C and RS485, baud rate is selectable
- 17 Optional scoreboard interface, 20mA current loop transmitting method.

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Dear users:

Please read the manual carefully before using this indicator.

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Chapter I. Technical Parameter

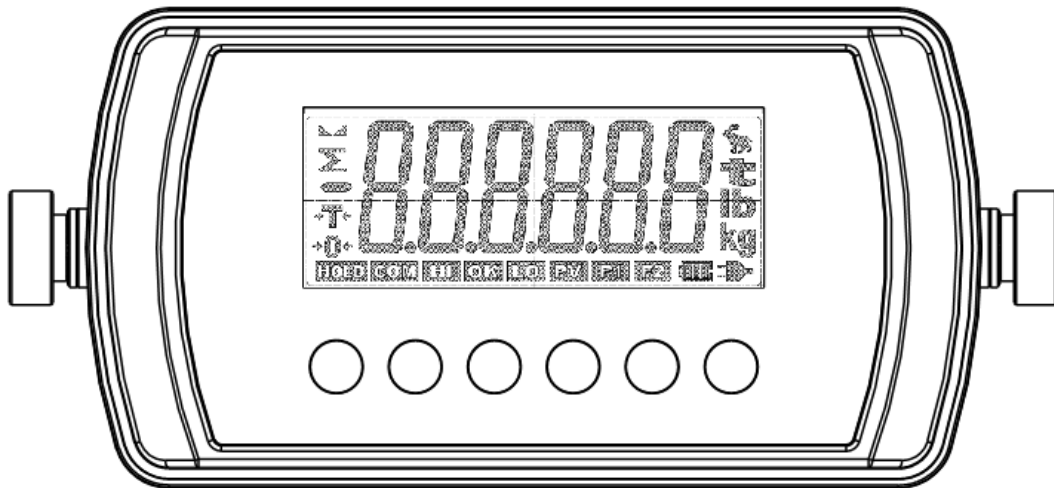
1. Model YH-T8 (OC version)
2. Class of Accuracy: Class III 、 n=3000
3. Analog
- Input signal range -19mV~19mV
- Minimum input voltage of every inspect division ΔU_{min} : 1 μ V
- Conversion speed 10 times/s
- Gain drift 0.03%
- Excitation voltage DC 5V
4. Display
- Display range -99999~999999 (decimal point is not considered)
- Division 1/2/5/10/20/50 optional
5. Operating environment
- Power supply (1) AC adaptor
- Input voltage range AC 110V~220V
- Output voltage range DC 6V
- (2)Build-in dry battery power supply
- interface (Battery is optional)
- 4 pieces of number 5 1.2V rechargeable battery or 4 pieces of number 5 1.5V dry battery (Please choose the proper charger according to the rechargeable battery type)
- Operating temperature 0 $^{\circ}$ C~40 $^{\circ}$ C
- Storage and transporting temperature -25 $^{\circ}$ C~ 55 $^{\circ}$ C
- Relative humidity \leq 85%RH
6. Weight Approx 1.2 kg
7. Maximum tolerance

Maximum tolerance	Inspect division e stand for signal m
$\pm 0.25e$	$0 \leq m \leq 500$
$\pm 0.5e$	$500 < m \leq 2000$
$\pm 0.75e$	$2000 < m \leq 10000$

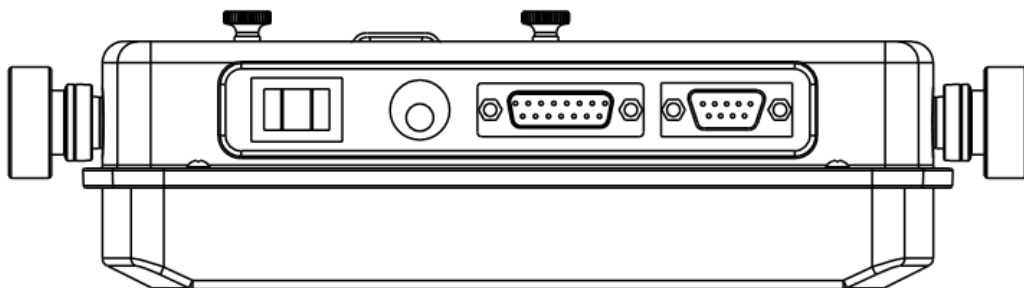
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Chapter II Installation and Connection

I. Indicator Diagram



(Figure 2-1) T8 Front cover



(Figure 2-2) Interface

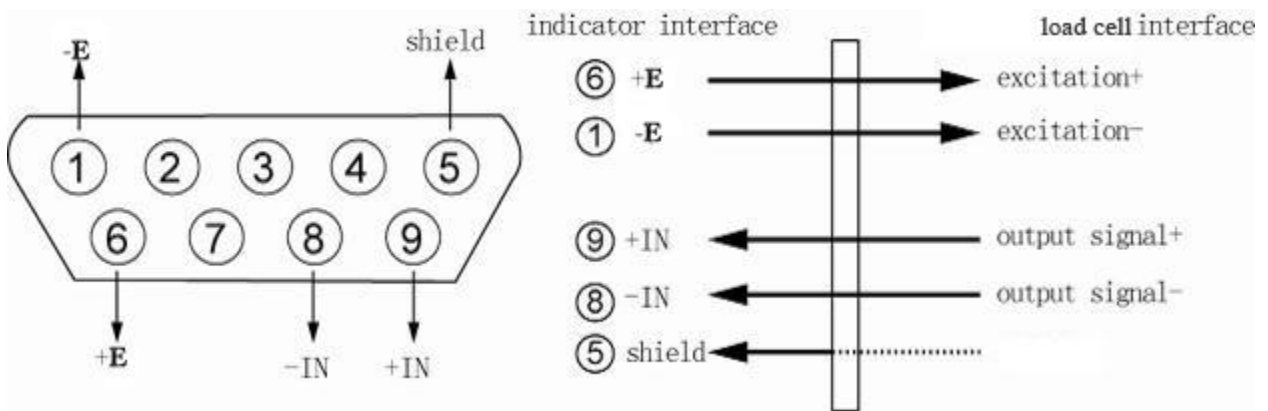
II. Load cell Connection

1. The Load cell is connected through 9-pin plug socket (hole). Figure 2-3 shows the meaning of each pin.
2. Please use 4-core shielded cable

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▲! The connections of Loadcell and indicator must be reliable, and the shielded cable of Loadcell must be reliably grounded. Connections wires shall not be plugged and pulled when the indicator is in a Power-up State in order to prevent static electricity damaging to the indicator or load cell.

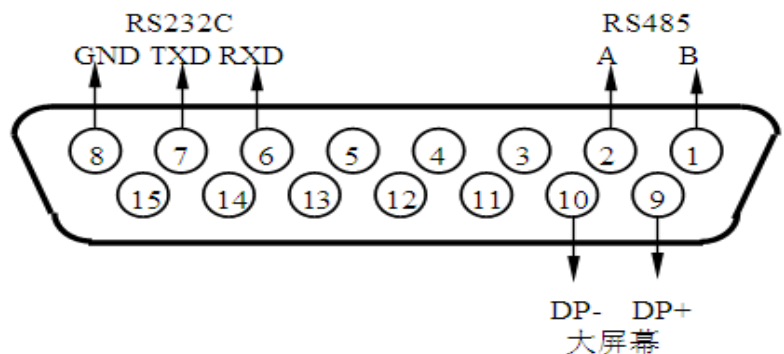
▲! Since both Load cell and indicator are static-sensitive device, anti-static measures must be practically taken in the use, and welding or other strong-electric operations on weighing platform are strictly prohibited. In the thunderstorm season, reliable lightning protection measures must be taken to prevent lightning damaging the sensor and instrument and to ensure the operator safety and the safe operation of weighing equipment and related equipment.



III. Serial Communication Interface and Scoreboard

RS232/RS485 Serial Communication Interface

Communication interface adopts RS232C and all the data is ASCII code, and there are 10 bits in every data group, and the 1st bit is start bit and the 10th bit is stop bit, and there are 8 bits in the middle and there is no parity bit.



1. Connection mode

YH-T8 communication interface uses 15-pin

socket (pin). Each pin is defined as follows: RS232 use pin 6 is for RXD, pin 7 is for signal TXD, pin 8 is for signal GND, shielded cable is recommended to be used as connection line See Figure 2-4 for details. RS485 use pin 1 is for signal B, pin 2 is for signal A Baud rate can

(图2-4) 串行通讯和大屏幕显示接口

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be in functional parameter as 1200/2400/4800/9600

2 RS232 Communication method.

Method 1 P5=2 continuous transmission

Transmitted data is weight.(gross weight, net weight or tare weight, decided by parameter P4).

Gross weight format is : ww000.000kg or ww000.000lb

Net weight format is: wn000.000kg or wn000.000lb

Tare weight format is: wt000.000kg or wt000.000lb

Note: Above decimal point position is determined by decimal point position setting of the indicator .

Method 2 P5=3: continuous transmission after stabilization.

Transmitted data is weight.(gross weight, net weight or tare weight, decided by parameter P4).

Gross weight format is: ww000.000kg or ww000.000lb

Net weight format is: wn000.000kg or wn000.000lb

Tare weight format is: wt000.000kg or wt000.000lb

Note: Above decimal point position is determined by decimal point position setting of the indicator .

Method 3 P5=4

Command method (Command character is ASCII code):

Indicator will do the relevant operation as the command sent by computer .

Command R Indicator receives the command and sends the weighing data one time. (format is as same as continuous method 1)

Command T Indicator receives the command , and tare(as same as Tare button) ,indicator return to CR LF

Command Z Indicator receives the command, and Zero (as same as Zero button), indicator return to CR LF

Method 4 P5=5: continuous transmission

Data format: = <Weight data (including decimal point)>, all data are in ASCII code..

Note: "=" is the start of data by ASCII code.

<Weight data (including decimal point)>: 7 digits (including decimal point) of weight data with symbol, ASCII code.

The lower digits are in front, and the higher digits and symbol digits are in the rear. Negative symbol bit is "-", and positive symbol is "0".

For example, if the weight showing on the indicator is -500.00kg, the serial output data will be "= 00.005-".

If the weight showing on the indicator is 500.00kg, the serial output data will be "= 00.0050".

3 RS485 Communication method

all the data is ASCII code, and there are 10 bits in every data group, and the 1st bit is start bit and the 10th bit is stop bit, and there are 8 bits in the middle and there is no parity bit.

AD: Indicator address (例如: A(ASCII 码为 41))

XH: are respectively 4 high bits

XL: are respectively 4 low bits

Address of instrument setting is 1~26, the address relative to communication is indicated by A~Z.

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Transmitting commander A~H by ASCII

The letters on behalf of meaning and the instruction format please under reference table communication

Command		Meaning	Format	Example
A	Send by PC	Handshake	02 AD 41 XH XL 03	02 41 41 30 30 03
	Send by indicator	Handshake	02 AD 61 XH XL 03	02 41 61 32 30 03
B	Send by PC	Read gross weight	02 AD 42 XH XL 03	02 41 42 30 33 03
	Send by indicator	Send gross weight	02 AD 42 ** ** ** ** ** ** ** ** XH XL 03	02 41 62 2B 30 30 31 2E 30 30 30 32 37 03(1.000)
C	Send by PC	Read net weight	02 AD 43 XH XL 03	02 41 43 30 32 03
	Send by indicator	Send net weight	02 AD 63 ** ** ** ** ** ** ** ** XH XL 03	02 41 63 2B 30 30 30 2E 30 30 30 32 37 03(0.000)
D	Send by PC	Read tare weight	02 AD 44 XH XL 03	02 41 44 30 35 03
	Send by indicator	Send tare weight	02 AD 64 ** ** **~ ** ** **~ XH XL 03	02 41 64 2B 30 30 31 2E 30 30 30 32 31 03(1.000)
E	Send by PC	Tare	02 AD 45 XH XL 03	02 41 45 30 34 03
	Send by indicator	Tare	02 AD 65 XH XL 03	02 41 65 32 34 03
F	Send by PC	Zero-setting	02 AD 46 XH XL 03	02 41 46 30 37 03
	Send by indicator	Zero-setting	Zeros success: 02 AD 66 XH XL 03 Zeros conditions are not met: 02 AD 69 XH XL 03	Zeros success: 02 41 46 30 37 03 Zeros conditions are not met: 02 41 69 32 38 03

Scoreboard

See scheme 2-4 for wiring details. Scoreboard signal is current loop signal of 20mA constant current and is output in a serial way through binary code, with a baud rate of 600. Each frame has 11 data bits, including 1 start bit (0), 8 data bits (LSB in front), 1 flag bit, and 1 stop bit (1).

Chapter III Operation Instruction

I. Startup

Touch the on/off button and the indicator display 【 ON 】 and turned on. Now all the symbol are on and 2 seconds later the indicator display the version number. And then indicator gets into self-check process "000000~999999". If the weight on platform is within the startup zero setting range, it will enter automatic zero, and then the weighing status. If the weight on platform exceeds the zero setting range, the indicator will give tips and display weight. If press [Function] button when the indicator display software version number, and the indicator will display the times of the calibration, for example: n1, and then display calibration data inspection sum total and indicator software sum total (for measurement office control); and then self-checking; if do not press [Function] button, the indicator will directly self-checking; and the indicator will come into the weighing status after the initialization.

II. Key Operation

In the calibration and parameter setting status, some keys will perform the following functions:

1. ZERO key performs the "plus 1" function. After the ZERO key is pressed, the indicate light corresponding position will be "plus 1", automatic zero will be made after it is added to 9.
2. TARE key performs the "move" function. After the TARE key is pressed, the indicate position of indicate light will move to the right for one bit, and will move to the first bit automatically when move to the last bit.
3. "# " key performs "input" function, after press "# " key the data will be input to indicator which was set.
4. CLEAR key performs "exit" function, after Clear key is pressed the indicator will exit the calibration state or setting state.
5. "*" key performs "switching parameter" function, after the * key is pressed the indicator will come into the next parameter setting state.

III. Weighing Operation

1. ZERO:

Press ZERO key to enable the data within zero setting range of indicator to return to zero.

Zero setting can be performed only after the STABLE light is on.

2. TARE:

When the displayed weight in weighing status is positive and the STABLE light is on, press the TARE key to deduct the indicated weight as tare weight. In this case, the indicator will show a net weight of "0" and the NET WEIGHT light is on. Press the TARE key again when gross

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weight is 0, the indicator will clear the tare weight value.


【Note】 Tare is not workable when gross weight is negative number.

3. Inner code checking:

Press [#] and [*] key together in the normal weighing status, the indicator will display the inner code. And this inner code value is for test use.

4. HOLD, average value:

You can choose this function by function setting F2, after selection key [#] will be used to start or stop this function, For example:

- P2=2;  display, Now press [#] start animal function
- P2=3; **PV** display in weighing mode, indicator is on the auto peak value holding function, can keep the max weighing data, when weight is back to 0, kept value will be cancelled.

5 Manual accumulation:

Press the [*] key when the weighted value is larger or equal to 20 divisions and the data is stable in the normal weighing state, the indicator will performs "manual accumulation" function. In the moment, the indicator will display the total accumulation data (in two steps): [total =] (indicating that the content shown below is the amount of accumulation data) will show the accumulation data [*****] in about 1 second. The times of accumulation will be then indicated (in two steps): [n =] (indicating that the times is shown below) will show the times of accumulation [***] in about 1 second. The ACCUMULATION indicating light is on then.

Note: the maximum times of accumulation is 9999 (when accumulation result is ensured to be ≤ 999999); The accumulation results will be held before they are cleared and the data will not be lost after power-off. When the [*] key is pressed, if the net weight is less than 20 divisions, only the accumulation value will be displayed, and the accumulation of weight and times will not be made.

6. Clear the accumulation result:

Press the CLEAR key in weighing state, the indicator will clear the times of accumulation and all accumulation data. The user should Clear first and then do accumulation when operate for the 1st time..

7 Unit Switch:

T8 indicator have many unit weight selectable, for more details please check Chapter V.

8. Upper & lower limits alarm:

While in normal weighing status, press [#] key. And steps are as follows:

Step	Operation	Display	Description
1		[*****]	Weighing display status
2	Press <u>[#]</u> for long time	[H00000]	Guide the user to enter the upper & lower limits alarm value
3	Upper limits alarm value, e.g. "3000"	[H03000]	Press <u>[#]</u> key to confirm and move to Step 4.
4	Lower limit alarm	[L 00050]	Press <u>[#]</u> key to confirm and move to Step 5

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	value, e.g. "50"		
5		[*****]	Go back to weighing mode., displaying net weight after tare.

【Note】The upper and lower limit alarm is not workable when both the upper and the lower limit is 0;

Chapter IV Calibration Description

Properly connect the signal source and power supply to preheat the indicator for 15-30 minutes when there is no load on weighing platform.

After lead sealing is broken, and stir the calibration switch to on position to allows the indicator to be calibrated. (Factory default that allows calibration, new indicator can omit this step), then operate as following steps (after calibration, lead sealing again):

(1) Press 【#】 key during startup initialization, the indicator will come into calibration state.

1、 Division settings:

Display 【d X】 press 【tare】 key to choose 1、 2、 5、 10、 20、 50, press 【#】 key to confirm, and will enter into next parameter setting, press 【tare】 key for automatic step-by-step cycle display.

Display 【d X】
 Display 【d 1】
 Display 【d 2】
 Display 【d 5】
 Display 【d 10】
 Display 【d 20】
 Display 【d 50】
 Display 【d 1】

For example, press【#】key when it shows【d 5】,now the division is setting to 5, and will come into decimal point setting state automatically.

2、 decimal point setting :

Display 【P X】 press 【tare】 key to choose0、 1、 2、 3, press 【#】 to confirm, and will come into next parameter setting automatically. press 【tare】 key for automatic step-by-step cycle display.

Display 【P 0】
 Display 【P 0.0】
 Display 【P 0.00】
 Display 【P 0.000】
 Display 【P 0】

For example, press 【#】 key when it shows 【P 0.000】 ,now the decimal point setting is 0.000, and will come into full capacity setting state automatically.

3、 Full capacity setting:

Display 【FULL】 press 【tare】 key to enter the number inputting state.
 Display 【0 0 0 0 0 0】 press 【tare】 key, indicate symbol▶ will move to right for one bit step by step to which input position you want, and press【zero】to add value to adjust the number you need, press 【tare】 key indicate symbol▼ will move to right for one bit step by step to which input position you want,press【zero】to add value to adjust the number you need until the full capacity is appeared ,press【#】to confirm and indicator will enter to

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next parameter setting automatically .

For example, when it displays 【0 2 5 0 0 0】 press 【#】 key to confirm and come into zero point setting calibration state.

4、 Zero calibration:

Display 【nOLOAD】 Insure there's no loads on the platform and wait until the stable indicate symbol \blacktriangleleft display, then press【#】key, zero calibration finished, and indicator come into full capacity calibration state.

5、 Full capacity calibration:

Display 【AdLOAD】 Put weights on the platform and press 【tare】 key to come into input state after stabilization.

Display 【0 0 0 0 0 0】 Press【tare】key, the indicate symbol \blacktriangleleft move to right and to the position which can select number input, press【zero】key to add number and until to what you need and then press 【tare】 key , the indicate symbol \blacktriangleleft move to right and to the position which you can select number input ,press 【zero】 key to add number until get the number as same as the weight value of the weight. press 【#】 key to confirm and finish the full capacity calibration state.

Display 【 End】

6、 Press 【clear】 key and back to weighing state and new parameters take effects. At this time you can also keep pressing 【#】 key to set other parameters.

(2)Press 【#】 key during startup initialization, the indicator will come into calibration state.

Fast Zero calibration:

Press 【Function】 key in any time before display 【nOLOAD】 ,the indicator will save the parameter of division, decimal point, full capacity, and come into the zero calibration state directly. Press 【zero】 key when the stabilization symbol \blacktriangleleft appears, it displays 【 End】, it means that the indicator save the full capacity calibration parameter before and press【clear】key, the indicator save the parameters and back to weighing state.

Come into full capacity calibration state directly:

Press 【*】 key in any time before display 【AdLOAD】 ,the indicator will save the parameters setting of division, decimal point, full capacity, and save the zero point parameter also and come into the full capacity calibration state directly.

Note : Push the calibration switch to off after the calibration, and lead sealing again.

Chapter V User's function setting

Press 【Function】 key over 3 seconds in weighing state, the indicator will come into user setting mode, there are P1~P7(user can revise anytime),F1~F11 (protected by calibration allowed switch) parameter setting, press 【tare】 key to adjust the number and press 【*】 key to come into next parameter. The parameters description are as follows:

1、 P1 x RS232 baud rate

x=1: 9600
x=2: 4800
x=3: 2400
x=4: 1200

2、 P2 x RS232 Output net weight gross tare choice

x=1: output net weight
x=2: output gross weight

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- x=3: output tare weight
- 3、 P3 x RS232 Communication method
- x=1: no transmission (RS232 stop)
- x=2: Communication method 1
- x=3: Communication method 2
- x=4: Communication method 3 (command method)
- x=5: Communication method 4
- x=6: for extend function use
- 4、 P4 x back light
- x=1: brightness1
- x=2: brightness2
- x=3: brightness3
- x=4: brightness4
- x=5: brightness5
- 5、 P5 x power-saving mode
- x=1: power-saving method 1, about 30 seconds
- x=2: power-saving method 2, about 30 seconds, only button press exit
- power-saving mode
- x=3: power-saving method 3, about 60 seconds
- x=4: power-saving method 4, about 60 seconds, only button press exit
- power-saving mode
- x=5: power-saving off , and back light always on
- 6、 P6 x RS485 baud rate
- x=1: 9600
- x=2: 4800
- x=3: 2400
- x=4: 1200
- 7、 P7 x RS485 address selection
- x=1-26:
- The below revise of the parameter maybe will effect accuracy of the weight, so if need revise you need to plug the calibration circuit ring on the main board and then can check the parameter and revise.
- 1、 F1 x unit switch
- x=1: kg display
- x=2: Lb display
- x=3: t display
- 2、 F2 x select function
- x=1: no other function
- x=2: start the animal function
- x=3: start the peak hold function
- 3、 F3 x zero track range
- x=1: 0.5e
- x=2: 1.0e
- x=3: 1.5e
- x=4: 2.0e
- x=5: 2.5e
- x=6: 3.0e
- x=7: 5.0e
- x=8: zero tracking forbidden
- 4、 F4 x zero button range

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- | | |
|------|--------------------------------|
| x=1: | 2%FS |
| x=2: | 4%FS |
| x=3: | 10%FS |
| x=4: | 20%FS |
| x=5: | 100%FS |
| x=6: | manual zero tracking forbidden |
- 5、 F5 x startup zero range
- | | |
|------|------------------------|
| x=1: | 10%FS |
| x=2: | 4%FS |
| x=3: | 10%FS |
| x=4: | 20%FS |
| x=5: | 100%FS |
| x=6: | startup zero forbidden |
- 6、 F6 x digital filter time intensity
- | | |
|------|--------|
| x=1: | fast |
| x=2: | middle |
| x=3: | slow |
- 7、 F7 X stable time
- | | |
|------|--------|
| x=1: | fast |
| X=2: | middle |
| X=3 | slow |
- 8、 F8 X stabilization extent
- | | |
|------|--------|
| X=1: | low |
| X=2: | middle |
| X=3 | high |
- 9、 F9 x acceleration of gravity revise
- x=0~32: default is 16, no revise
- x<16: this value is smaller means the acceleration of gravity is smaller
- x>16: this value is bigger means the acceleration of gravity is bigger
- Single number revise 0.0375%, maximum revise 0.6%
- 10、 F10 x overload alarm
- | | |
|------|----------------|
| x=1: | above±0.9e Max |
| x=2: | above±105% Max |
- 11、 F11 x negative value display range
- | | |
|------|--------------------|
| x=1: | not less -9e |
| x=2: | not less -20e |
| x=3: | not less -10% %FS |
| x=4: | not less -100% %FS |

Chapter VI Error Indication

[Err 1] Inner code loading is too small or the capacity of load cell is too large

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- [Err 2] Out of manual zero setting range
- [Err 3] Zero position is too high or there are heavy goods on platform when indicator is startup.
- [Err 7] The calibration switch is not on, Please put short-circuit ring on calibration switch
- [Err 8] Load_cell signal line connect in reverse, please connecting Load_cell line in right way .
- [-----] Out of display range , display value should between -99999~999999
- [A oL] Out of the maximum times of accumulation or weigh of accumulation,
If the accumulation is not workable , please do the operation after clearance.

Chapter VII Maintenance and attention

1.To guarantee its clarity and service life, the indicator shouldn't be placed directly under sunshine and should be set in the plain space.

2.It is not suitable to place the indicator in the dusty and vibration environment and also avoid using in the moist environment.

3.Signal source and weighing indicator should be reliably connected, and system should be well grounding. It should be far away with strong electric field, strong magnetic field. Load cell and indicator should be far away with strong corrosive, inflammable, explosive object.

▲ Do not use under inflammable gas or inflammable steam; do not use under pressure container canning system.

▲ Lightning frequent areas, it must be installed reliable lightning arrester, to ensure operators safety and prevent damage of instruments and relevant equipment due to lightning.

▲ Signal source and indicator are static sensitive equipments, when using must earnestly adopt anti-static measure. It is prohibited in measuring device for welding operation or other strong electric field operation; in thunderstorms season, we must implement the reliable lightning-protection measures to prevent signal source and the indicator damage caused by lightning strike, ensure operators safety of weighing equipment and related equipment safety operation.

4. Never use strong solvents (e.g., benzene, nitro class oil) to clean the housing.

5. Liquid or electricity conducting particles should not be poured into the indicator, in case the indicator damage and electric shock.

6. You should cut off power supply of indicator and relevant device before you pull-in

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and out the connecting cable of indicator and external device.

1. You should cut off power supply before pull-in and out connecting cable of signal source.
2. You should cut off power supply of indicator and scoreboard before pull-in and out connecting cable of signal source.
3. You should cut off power supply of indicator and PC software before pull-in and put out connecting cable of signal source.

7. Company advice for customers: start to use our indicator after testing. The company is only responsible for the quality of the indicator. The biggest compensation is not more than twice of indicator value, the company is not responsible failure of the whole system.

8. Output interfaces of indicator must be strictly in accordance to the user's manual, you should not alter any connection. If there is failure when using the indicator, you should immediately unplug it, and send to manufacturers for repairing. Ordinary non-professional manufacturers should not repair it to avoid bigger damage.

9. Since invoice date, the indicator has a one-year free repairing period. If any non-artificially failure happens under regular using conditions within this period, the user can send the indicator with its guarantee card (of the correct number) back to our service station or supplier for repairing. The indicator shouldn't be open without authorization, otherwise free guarantee will be cancelled

10. Battery

Be sure to fully charge the battery before using the built-in battery for the first time!

② Four grade battery voltage display, and battery voltage are :4.8V、 4.5V、 4V、 3.6V。 The indicator will turn off when the last light is off.

③ Please charge the battery for about 10-16 hours before its first use so as to avoid a too low voltage caused by self-discharging of battery which may be mistakenly taken as failure.

④ The battery shall be charged for about 10-16 hours at a time during the normal operation. If the indicator is not to be used for long, the battery shall be charged for 10-16 hours every two months in order to extend its service life.

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