

Temperature Transmitter

CZWB230-I

(GYB14.1317X)



Please read the instruction manual carefully before use the product, and please safekeeping.

Caution

- Please check whether the product type on the package accords to the ordering contract;
- Read this manual carefully before installation or using. If there is something unclear, please dial technic support hotline-400 881 0780;
- Users are not allowed to dismantle or repair the product otherwise it will induce malfunction.

Summarize

Intrinsically safe type display isolated temperature transmitter, can be installed in hazardous area directly, linearly transfer field TC or RTD signal into 4~20mA corresponding to temperature and output isolatedly, LCD current measured temperature value. The transmitter has functions of sensor breakage alarm direction, TC input has automatic cold junction compensation function. Parameters like range and graduation number can be configured through dedicated software.

Specification

Power Supply $U_e(+, -)$: 16~28V DC(Including display meter)

Loop voltage drop of LCD meter: <3.5V(with LED backlight)

Display meter can be rotated in 0-360 degree

Output: 4~20mA

Load resistance: $R_L \leq (U_e - 16) / 0.021 \Omega$

Output accuracy: See input signal and range list

Temperature drift: 0.01%F.S./°C

Response time: Reach 90%of final value in 5s

Additional cold junction compensation(TC): $\pm 1^\circ\text{C}$;

Another wire resistance influence $\leq 0.2^\circ\text{C}/100\Omega$

Alarm directions: Lower limit overflow alarm, output current about 3.8mA;

Upper limit overflow alarm, output current about 20.8mA;

Breakage alarm, output current about 20.8mA;

(Note: breakage alarm current < 4mA or other special requirements, need be customized)

Dielectric strength: 1500V AC; 1min between input and output

Insulation resistance: Between input and output $\geq 100M\Omega$, 500V DC

Electromagnetic compatibility: According to GB/T 18268(IEC 61326-1)

Relative humidity: 10%~90%

Storage temperature: $-10^\circ\text{C} \sim +60^\circ\text{C}$

Operation conditions: The air should not contain any medium corrupting the coat of chrome, nickel and silver. Moreover, violent quiver and impact or any cause of electromagnetic induction must be avoided when using.

Weight: Approx. 950g

Input signal and range list

Type	Range	Min. span	Accuracy
TC	T	$-200^\circ\text{C} \sim +400^\circ\text{C}$	50°C 1°C/0.2%
	E	$-200^\circ\text{C} \sim +900^\circ\text{C}$	50°C 1°C/0.2%
	J	$-200^\circ\text{C} \sim +1200^\circ\text{C}$	50°C 1°C/0.2%
	K	$-200^\circ\text{C} \sim +1372^\circ\text{C}$	50°C 1°C/0.2%
	N	$-200^\circ\text{C} \sim +1300^\circ\text{C}$	50°C 1°C/0.2%
	R	$-40^\circ\text{C} \sim +1768^\circ\text{C}$	500°C 3°C/0.2%
	S	$-40^\circ\text{C} \sim +1768^\circ\text{C}$	500°C 3°C/0.2%
	B	$+320^\circ\text{C} \sim +1820^\circ\text{C}$	500°C 3°C/0.2%
mV	$-100\text{mV} \sim +100\text{mV}$	10mV 40uV/0.1%	
RTD	Pt100	$-200^\circ\text{C} \sim +850^\circ\text{C}$	20°C 0.4°C/0.2%
	Cu50	$-50^\circ\text{C} \sim +150^\circ\text{C}$	20°C 0.4°C/0.2%
	Cu100	$-50^\circ\text{C} \sim +150^\circ\text{C}$	20°C 0.4°C/0.2%

Note: 1. "%" of output accuracy is relative to the setting range, should take a bigger of relative error and absolute error as the output accuracy in application;

2. RTD input, allow max. wire resistance 50Ω(3-wire);

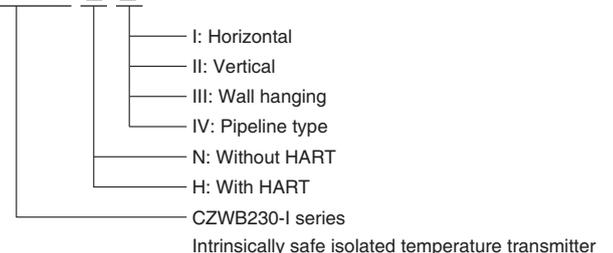
3. TC input, transfer accuracy not contain cold junction compensation error; Every increase in compensation wire 100mm, cold end error increases 0.2°C;

4. TC type B input, the lower limits of temperature range must be greater than 680°C, to meet the accuracy specifications;

5. mV signal has to be customized.

Type definition

CZWB230-I. □. □



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Intrinsic safety description

National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI)

Compliance with standard: GB3836.1, Gb3836.4 and Gb3836.20

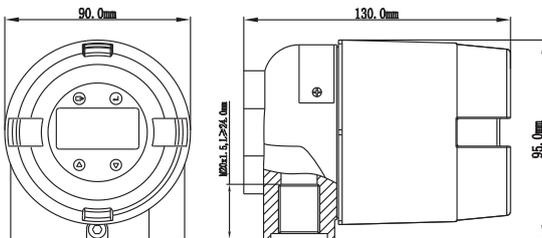
Ex-marking: Ex ia IIC T4 Ga

Intrinsic safety parameter: $U_i=28V$, $I_i=93mA$ $P_i=0.66W$, $C_i=2.5nF$, $L_i=0mH$

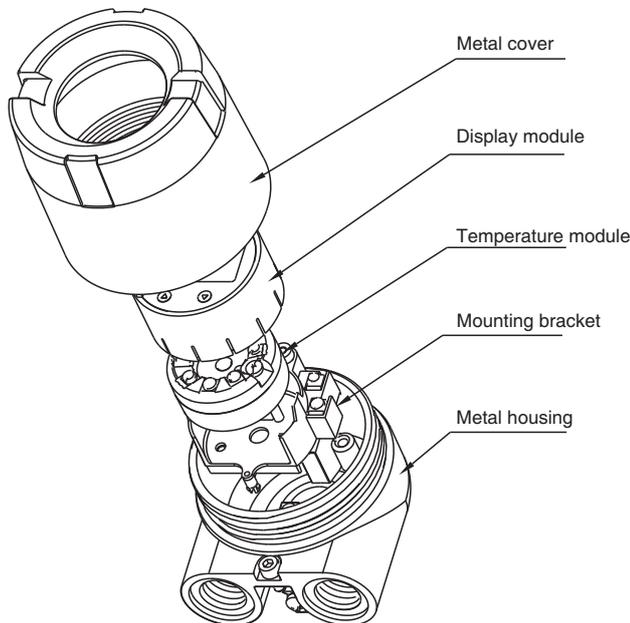
Users shall comply with the following requirements when using

1. Product shell has earthing terminals, when users installing and using, it shall be reliable grounding.
2. Ambient temperature shall be: $-10^{\circ}C \sim +60^{\circ}C$.
3. The cable entry of product (M20x1.5) must be approved by explosion proof inspection.
4. Ex marking with "X" suffix indicates that the product has specific conditions of use, specification is the product shell material is aluminum alloy, the installation must be able to prevent ignition hazard caused by impact or friction.
5. Installation and maintenance of product shall comply with the principle of "Cannot open with charge".
6. Users shall not replace the parts of the product himself, should solve the problem during operation with the same product manufacturers together to prevent the occurrence of damage.
7. Installation, application and maintenance of product shall comply with the relevant requirements of GB50257-1996, GB3836.13-1997, GB3836.15-2000 and GB3836.16-2006.

Dimensions

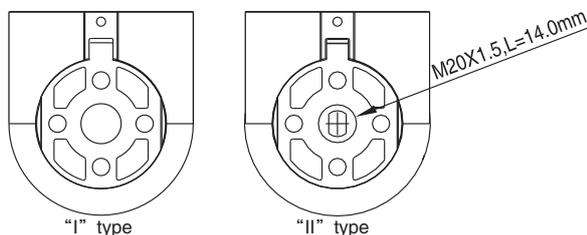


Structure



Housing and accessories

1 Housing difference



Specification

I type housing is suitable for installation of horizontal, wall hanging and pipeline type.

II type housing is suitable for vertical installation.

2 Standard accessories

2.1 Copper cable gland



Product with 1 copper cable gland in standard;
Thread size M20X1.5, grommet diameter: 6.0~10.0mm.

2.2 Plastic bulkhead



Product with 2 plastic bulkheads in standard;
Thread size M20X1.5, Material: PA66.

3 Special interface size

Standard interface of product's housing is M20X1.5 thread. If the mounting thread of user does not match the size, the adapter can be customized as required.

Structure descriptions

Assembly and disassembly of the locking mechanism

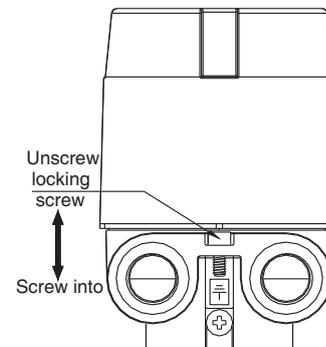
1. Locking

Before cover assembly, screw the locking screw into the housing. After cover assembly, unscrew the locking screw to prop the cover to prevent the cover from rotating.

2. Disassembly

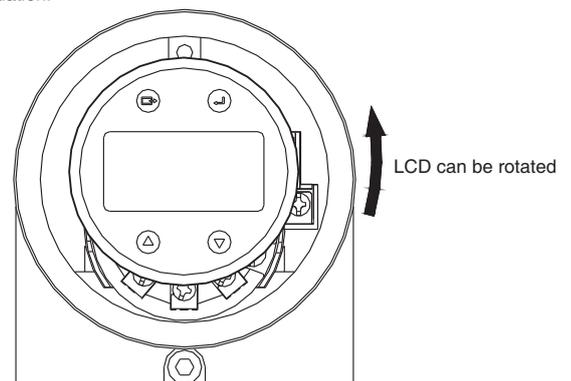
When disassembling, first screw the locking screw into the housing then remove the cover.

Note: According to GB3836.1, the locking screw of equipment must be in a locked state.



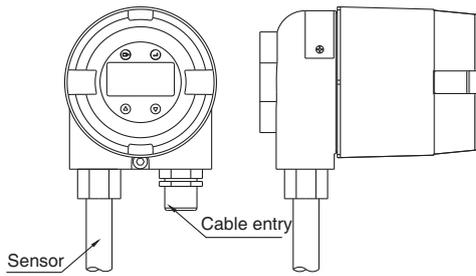
3. Rotation function of LCD

LCD with a rotation function. Rotation angle: 360° ; Rotation direction: counterclockwise. The figure shows the standard position of the product when leaving the factory, users can rotate and adjust to the suitable location according to the actual situation.



Installation and accessories

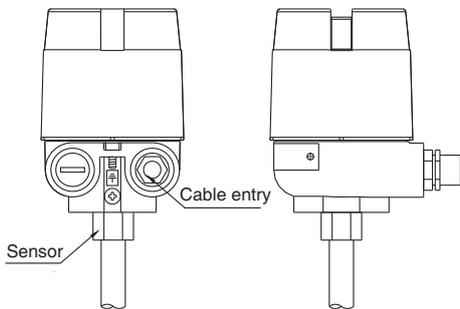
1. CZWB230-I.□.I Horizontal installation



Specification:

1. Users can adjust the installation position of cable entry and sensor according to the actual situation;
2. Users can select bulkhead according to the actual situation;
3. The cable entry device and bulkhead selected by users must be approved by the explosion proof test.

2. CZWB230-I.□.II Vertical installation

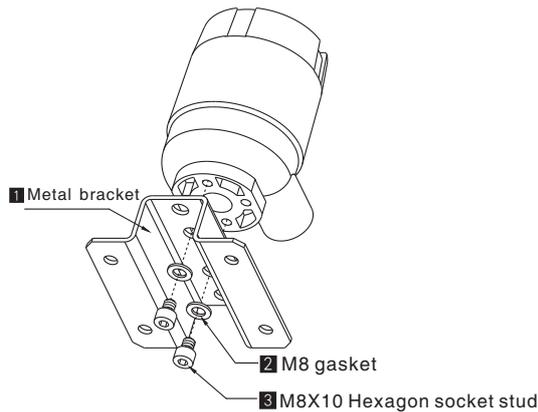


Specification:

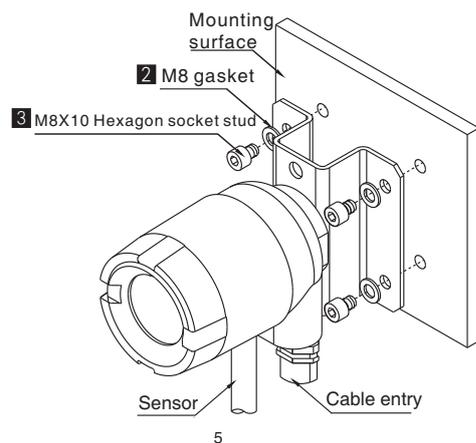
1. Users can adjust the installation position of cable entry and sensor according to the actual situation;
2. Users can select bulkhead according to the actual situation;
3. The cable entry device and bulkhead selected by users must be approved by the explosion proof test.

3. CZWB230-I.□.III Wall hanging installation

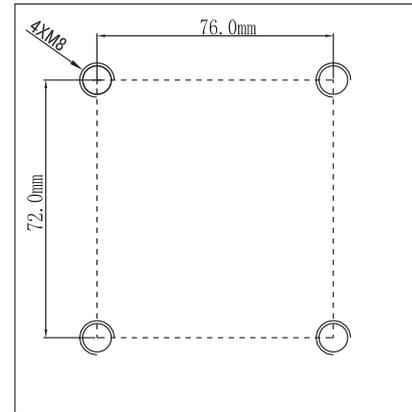
Step 1



Step 2



Hole reference size on mounting surface



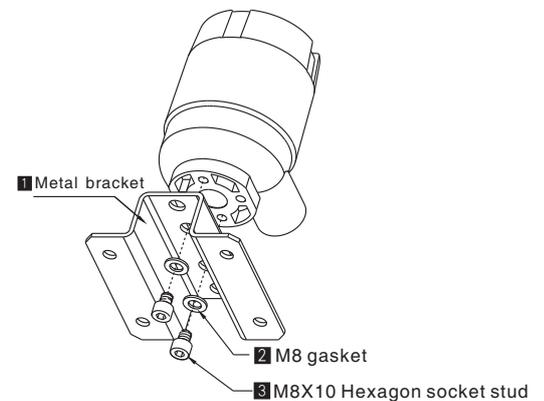
Accessories

No.	Name	Quantity
1	Metal bracket	1
2	M8 gasket	6
3	M8X10 Hexagon socket stud	6

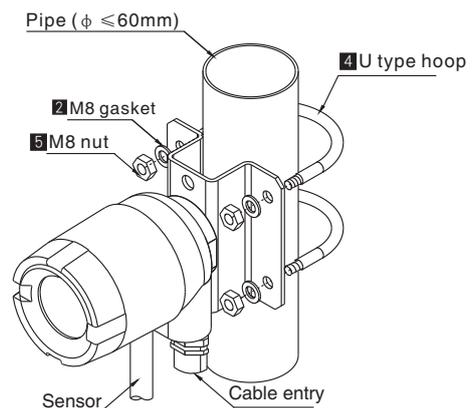
Note: The cable entry device and bulkhead selected by users must be approved by the explosion proof test.

4. CZWB230-I.□.IV Pipeline type installation

Step 1



Step 2



Accessories

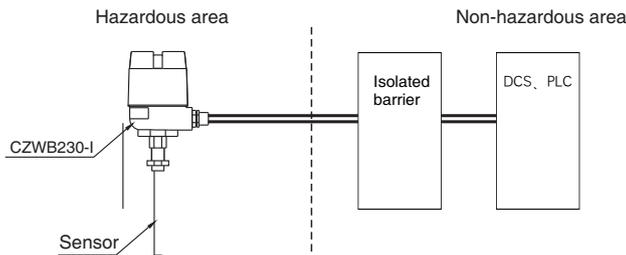
No.	Name	Quantity
1	Metal bracket	1
2	M8 gasket	6
3	M8X10 Hexagon socket stud	2
4	M8X84 U type hoop	2
5	M8 nut	4

Specification:

- Users can adjust the installation position of cable entry and sensor according to the actual situation;
- Users can select bulkhead according to the actual situation;
- Max. diameter of installation pipe shall be less than 60mm;
- The cable entry device and bulkhead selected by users must be approved by the explosion proof test.

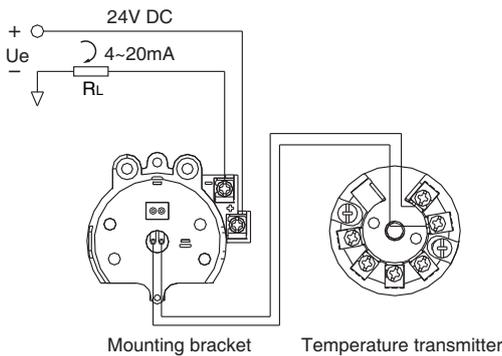
Application

1. Overall product application wiring diagram

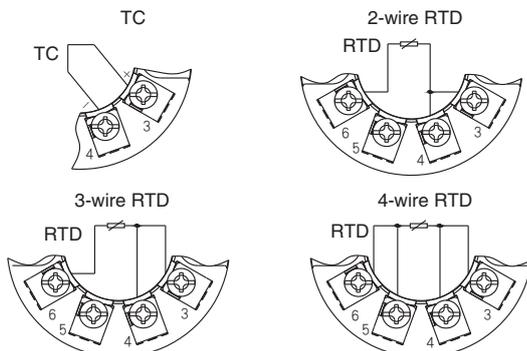


Note: The isolated barrier is equipped with GS8547-EX

2. Internal wiring diagram of product



3. Wiring diagram of temperature transmitter



Notes: When 2-wire RTD input, terminals 3&4 must be short connected.
3-wire RTD input, resistance of 3 wire should be same as possible.

Panel introduction

1. LCD display



LCD with backlight, easy to display in dark. The display is divided into 3 lines: First line with 5 " " and minus "-" on the left, display up to 99999, used to show the current measured value, refresh rate 1Hz; Second line with 10 bar graphs, from 0% to 100%, 10% as the step, refresh rate is 0.5Hz; Third line with 7 " ", can display

When loop current exceed max. measurable range, LCD shows overcurrent alarm as below:



At this time should disconnect line right away and check the problem, otherwise it may reduce instrument accuracy or cause permanent damage.

Parameter settings

1. Instrument configuration parameter settings

There are 4 keys on the instrument for browsing and setting configuration menu.

Left upper: Key ESC(Quit)



Right upper: Key ENTER(Enter)



Left lower: Key PREV(Down regulate)



Right lower: Key NEXT(Up regulate)



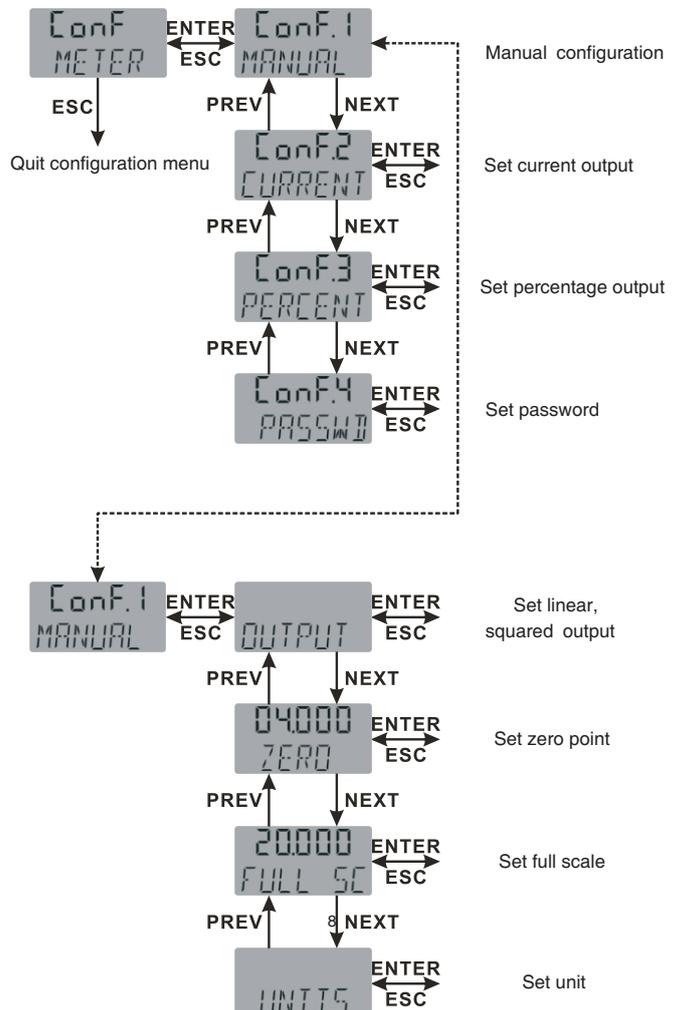
To enter menu settings, you have to press and hold Key NEXT and Key PREV for 5s at the same time, then LCD will show as below:



Then press Key ENTER to enter the menu and to select.

After finishing configuration, press Key ESC to quit.

2. List of menu trees



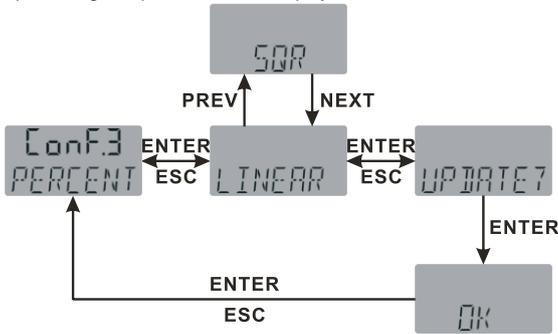
3. Function setting in detail

3.1 Set current output: Instrument displays 4.000-20.000mA.



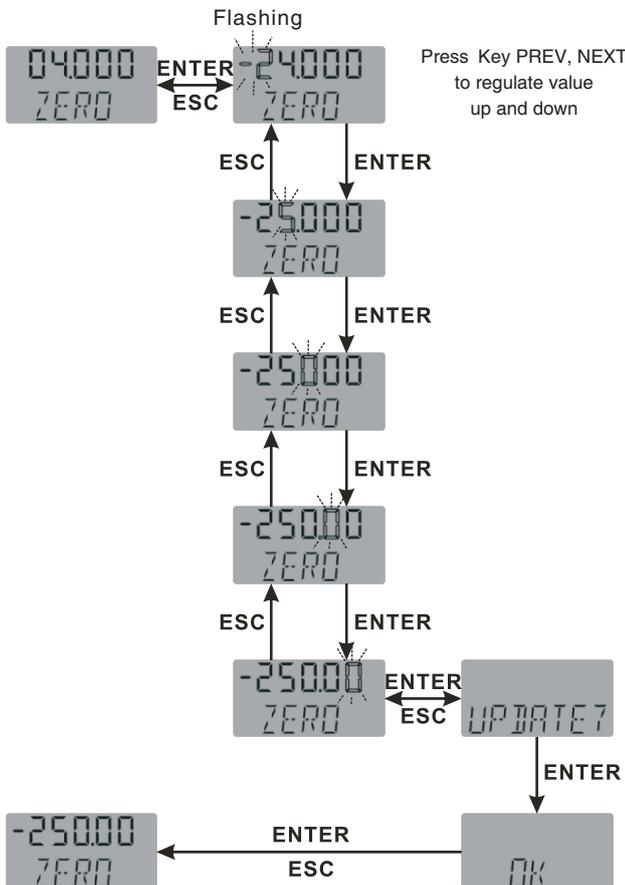
Set current output, enter menu "Conf.2 CURRENT", after receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully. Instrument is set to this state when leaving the factory.

3.2 Set percentage output: Instrument displays 0.00-100.00%



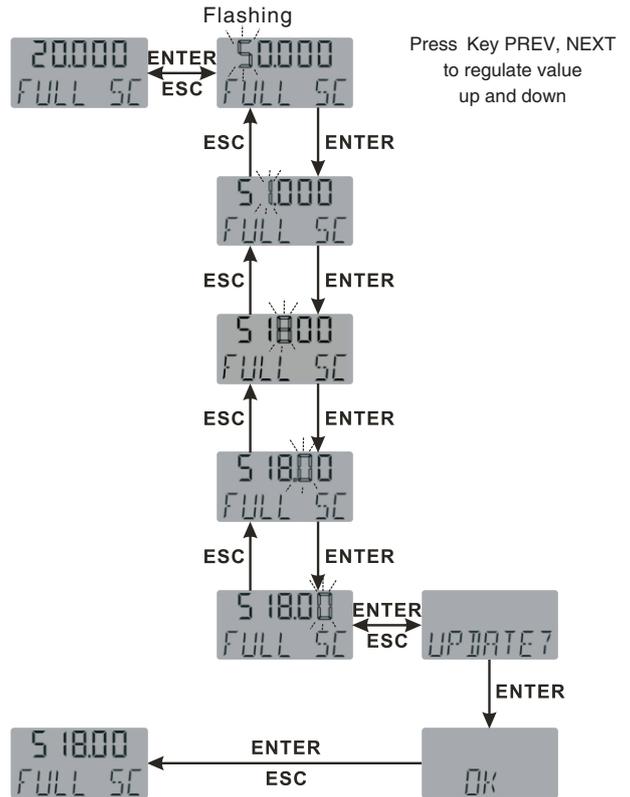
Set percentage output, enter menu "Conf.3 PERCENT", can choose output as "LINEAR" or "SQR", default please choose linear output. After receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully.

3.3 Set zero point: Customize instrument display range



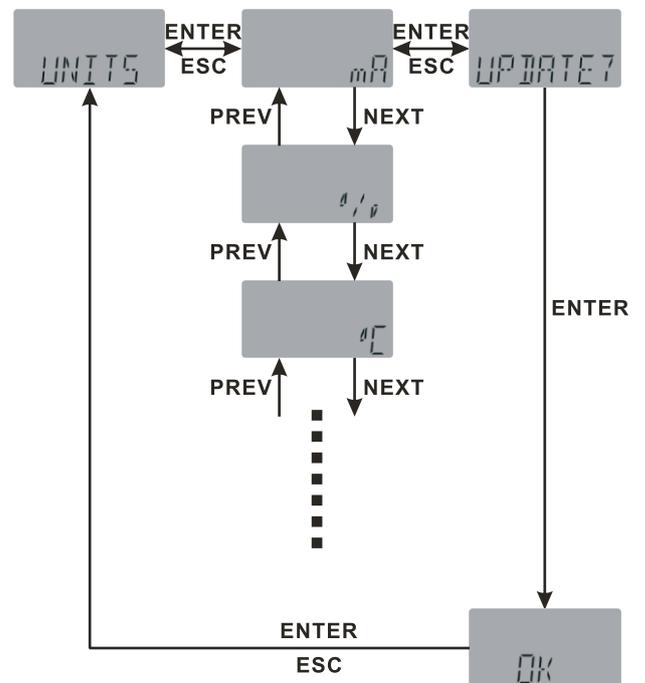
Enter menu "Conf.1 MANUAL", enter submenu "ZERO", set value in turn. Zero point value can be range of -99999~99999. After receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully.

3.4 Set full scale: Customize instrument display range



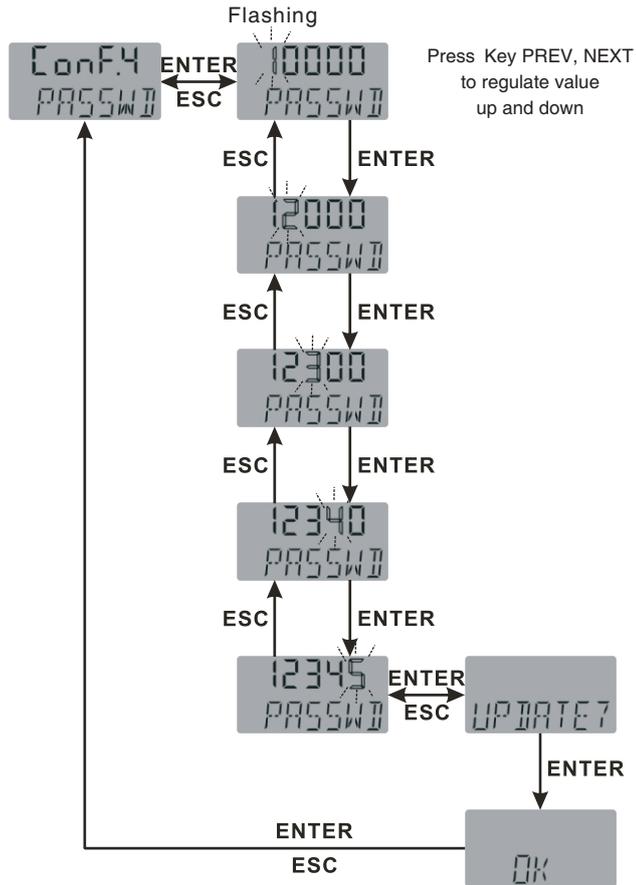
Enter menu "Conf.1 MANUAL", enter submenu "FULL SC", set value in turn. Full scale value can be range of -99999~99999. After receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully.

3.5 Set unit: Customize instrument display unit



Enter menu "Conf.1 MANUAL", enter submenu "UNITS", press Key PREV, NEXT to select unit, there are several common used units in instruments can be selected, such as: mA, %, °C, Hz, kHz, mV, V, Ohm, kOhm, Pa, kPa, mPa, A, B, C. After receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully.

3.6 Set password: Password is not enabled when leaving the factory



After setting password protection, enter configuration menu need to input 5 digital password. "00000" turns off password protection(default). Set password please enter menu "Conf.4 PASSWD", set value in turn. After receiving request of "UPDATE?", press Key ENTER, displays"OK", parameter setting successfully.

■ After-sale service

(1) Every product has been tested strictly before leaving the factory. If users find any abnormality in the module, please contact the nearest agent or our company;

(2) In 5 years from the delivery date, if product works improperly during normal operation, we will repair or replace it without payment.