



User Manual

GE-137 Chlorine Controller



The initial password: 8130

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1. Overview:

GE-137 Chlorine controller used in drinking water treatment plants, drinking water distribution network, a swimming pool.

2. The structure features:

Measurement system consists of GE-137 controller, chlorine electrode, pH electrode (automatic pH compensation) of three parts parts. Electrode contact with the tested solution, instrument displays the value of aqueous solution of chlorine, pH, temperature and working state.

3. Technique features:

- (1) Measuring range: Chlorine (set free): 0~20.00mg/L (ppm);
Temperature: 0~60°C;
- (2) Resolution: Chlorine: 0.001mg/L; Temperature: 0.1°C;
- (3) The temperature compensation range: 0~60°C (Reference TEMP 25°C)
- (4) The pH compensation range: 6~9pH;
- (5) Response time: < 2min (90%, 20°C)
- (6) Minimum flow: 15cm³/S (constant velocity)
- (7) The stability: <2%F·S every month(normal temperature and normal pressure)
- (8) Current output: 0~10mA(load resistance<1.5KΩ);
4~20mA(load resistance<750Ω);
- (9) Two group of alarm relay: 3A 240VAC, 6A 28VDC 或 120VAC;
- (10) power supply: 220VAC±10%,50±1Hz;
- (11) The dimension: 96×96×130mm;
- (12) Installation way: panel installation;
The tapping size of electronic unit : 91×91mm;
- (13) The electronic unit weight: 0.6kg;
- (14) Operating conditions: a)Ambient temperature : -10~60°C;b)Relative humidity: no bigger than 90%; c)There are no corrosive gas around; d)There are no other magnetic fields or electromagnetic fields which produce the negative effect except the earth magnetic field.

4. The installation of meter

4.1 The controller shall be installed where it is clean, dry and well-ventilated and there is no vibration, no corrosive gas or steam. Some space shall be left around the meter, for the convenience of the operation and overhaul. The meter shall be as close as possible to the sampling point, for ease of pipe and electric connection. The meter shall be close to the sensor for the ease of calibration. See the diagram 1 for size: 91mm * 91mm.

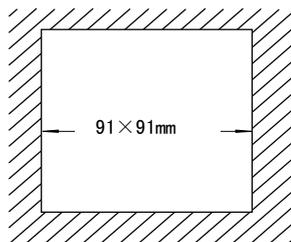


Figure 1 hole-tapping size

4.2 The electrode and installation:

Two-electrode circulation tank, the chlorine and pH electrode into the electrode circulation tank use.

One-electrode circulation tank, the chlorine and pH electrode into the electrode circulation tank use.

4.3 The electric connection:

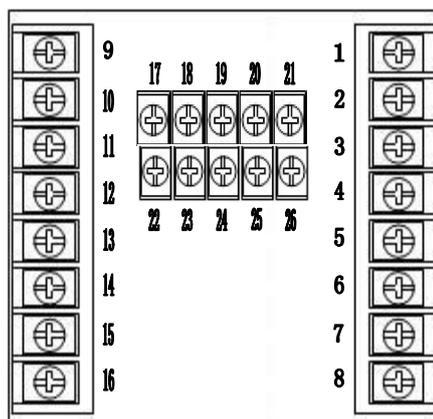


Figure 2 instrument wiring diagram

Wiring instructions:

- | | |
|-----------------------------------|--|
| 9、Chlorine electrode terminal | 1、High alarm relay normally closed contact |
| 10、pH electrode terminal | 2、High alarm relay contact common |
| 11、Temp and pH electrode terminal | 3、High alarm relay normally open contact |
| 12、Temp electrode terminal | 4、Low alarm relay normally closed contact |
| 13、Chlorine electrode terminal | 5、Low alarm relay contact common |
| 14、Null | 6、Low alarm relay normally open contact |
| 15、Chlorine output current— | 7、220VAC |
| 16、Chlorine output current+ | 8、Zero line |
| 17、~26、Null | |

4.4 Electrodes fixed conventional cable length is 5m lead, Terminals Department has labeled inserts with insert it into the controller back the same number of terminal symbols can be tightened.

5. Function Keys

The panel has 6 touch key and they are: Esc、←、→、↑、↓ and Enter .

Esc: shift between the measurement screen and menu screen or return to the previous menu and status from the menu screen or cancel the input data;

←: move to the first menu item or move the cursor to the left when the data is input;

→: move to the last menu item or move the cursor to the right when the data is input;

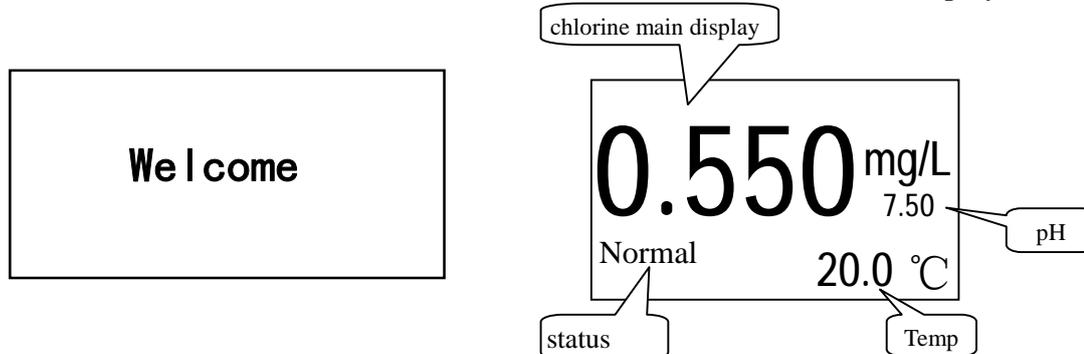
↑: move the menu upward or numerical value increases;

↓: move the menu downward or numerical value decreases;

Enter: Choose or confirm the menu item and finish the data input or confirm certain status.

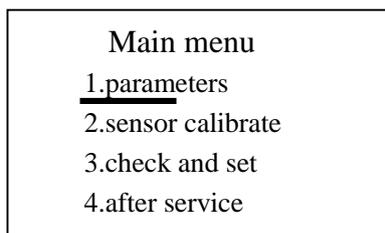
6. Detailed instructions

6.1 Power-on: Before the meter is used, check all the pipe connection and the electric connection. After the power supply is connected, the meter displays as shown in below left, In over serval seconds, meter will enter into measurement main display.

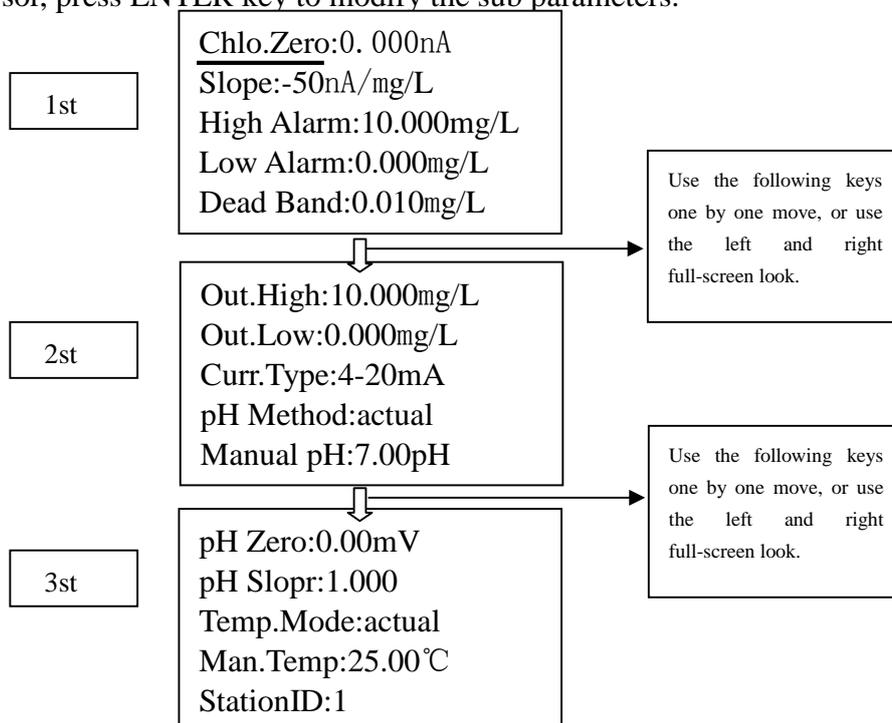


The chlorine content is main display, temperature&pH and status is subsidiary content. The status line display below information: normal, high alarm, low alarm, temp.

6.2 Main menu: While in the main display status, press ESC key will enter main menu. It display like below:



6.3 The submenu “parameters”:All the parameters under the submenu should be checked before measuring, otherwise it will run by the preset values. Move the cursor to the “1.parameters” submenu and press ENTER key, a password will be requested(preset password is 223). When enter this submenu, using ↑ or ↓ key move the cursor, press ENTER key to modify the sub parameters.



6.4 Parameter Description:

1) "Chlo.Zero" and "Slope": These two electrodes were used to set the zero potential of residual chlorine and chlorine electrode slope. Chlorine electrode was calibrated data "Chlo.Zero" and "slope" was recorded in the parameter menu.

2) "pH Method" and "Manual pH": "PH Method" decision is measured by pH electrode, pH value is measured or manually entered after the pH value. Enter the pH value of artificial stable, mainly in the case of water use (6.5-7.5pH), this case can not install the pH electrode, pH value directly measured in the artificial setting of residual chlorine value, the artificial pH value can be manually set.

3) "pH Zero" and "pH Slope": These two electrodes were used to set the pH of zero potential and the pH electrode slope. pH electrode was calibrated for these two data is recorded in the parameter menu.

4) "High Alarm" and "Low Alarm" and "Dead Band": The three used to set the high and low alarm limits, alarm high limit > lower limit alarm; and can be set to control the amount of dead band.

5) "Out.High" and "Out.Low": These two used to set the current output value corresponding to the range of chlorine, the output limit > output lower limit.

6) "Curr.Type": This menu item sets the meter current output mode, can be "0-10mA" and "4-20mA" choose one. Measured output current and the corresponding relationship between the conductivity values:

0~10mA Output: $I = \{(D-DL)/(DH-DL)\} \times 10mA$;

4~20mA Output: $I = 4mA + \{(D-DL)/(DH-DL)\} \times 16mA$ 。

Which: I- Output current; D- The current value of the measured residual chlorine;

DH- Set by the user "Out.High"; DL- Set by the user "Out.Low".

7) "Temp.Mode" and "Man.Temp": "Temperature mode" points "actual" and "manual" "actual" refers to the actual temperature is measured by the temperature sensor's; "manual" means the temperature is artificially set, and the actual solution is independent of temperature.

8) "StationID": This item is used when communication by RS485, it means the ID number of the meter in the RS485 network.

6.5 Calibration instructions:

Each chlorine electrode and the electrode slope of zero is not the same as the current, as the consumption of electrolyte, Chlo.Zero and slope in the course will gradually change, generate aging, Every time you add or replace the electrolyte-permeable membrane can also lead to Chlo.Zero and slope changes, this

requires regular "calibrated"to ensure accuracy.

To access this menu to enter the correct password before(password:8130).

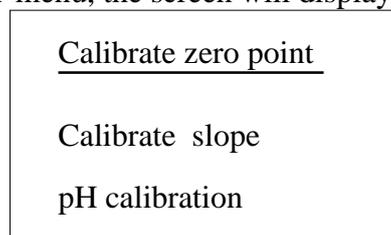
Instrument is divided into: zero calibration, the slope of calibration residual chlorine, two point calibration of pH, three calibration points.

Zero calibration: the electrodes placed on the free chlorine residual chlorine in the zero calibration electrode.

Slope of the calibration residual chlorine: the residual chlorine electrode placed in a known concentration of chlorine solution, the slope of the electrode used for calibration.

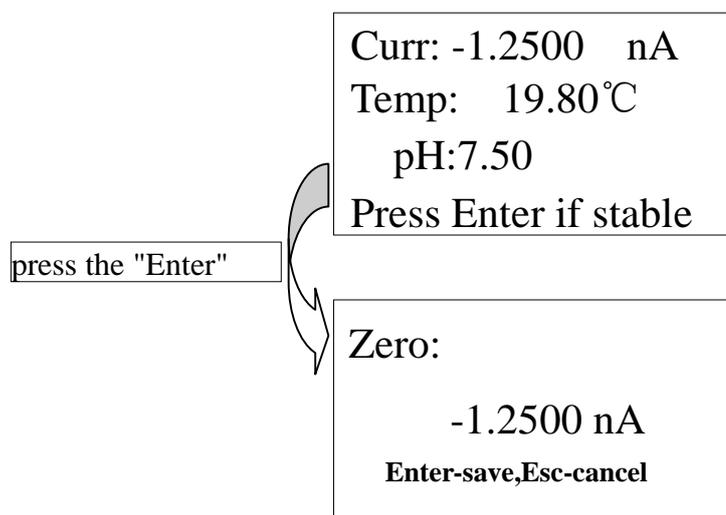
Two point calibration of pH: Using two standard pH calibration buffer pH electrode potential and slope of zero.

Into the "calibration"menu, the screen will display:



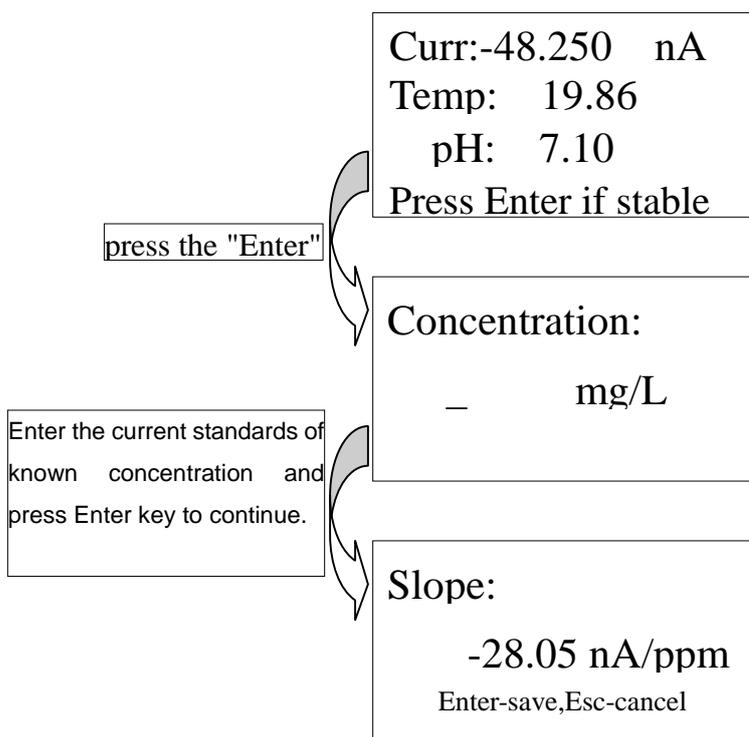
Use the arrow keys to move the cursor to select calibration content, press the "Enter"to start. After calibration accuracy by "Esc", retreated to the display interface.

Zero calibration: Zero calibration residual chlorine electrode, permeable membrane to keep the first clean, Calibration of the electrode before the filter paper with a clean and gently dry the bottom of the water droplets , electrodes placed on the chlorine-free chlorine in (Such as distilled water, purified water), Operating controller press the "Enter"key to enter, and then follow the onscreen prompts.



Slope of the calibration residual chlorine: Before calibration, the residual chlorine concentration of residual chlorine electrode placed in a known standard solution, Operating controller press the "Enter"key to enter, and then follow the onscreen prompts.

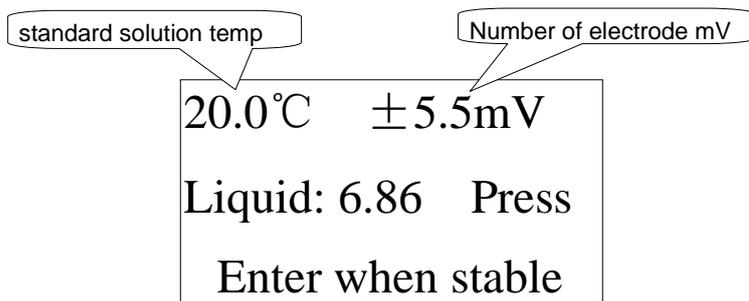
Note: The values shown for reference only, not actual calibration data.



two point calibration of pH: (PH when using the automatic compensation function to use this feature):

Select 1:
9.18pH
6.86pH
4.00pH

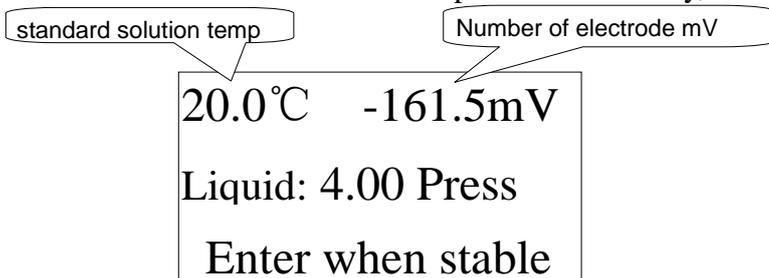
6.86 standard solution chosen by confirmation key, as follows:



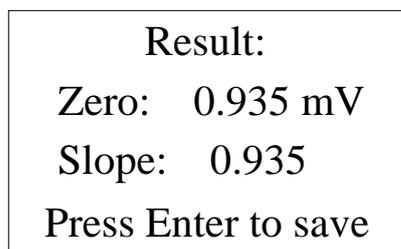
Wait for a stable and press Enter button:

Select 2:
9.18pH
6.86pH
4.00pH

Choose 4.00 or 9.18 standard solution press the Enter key, the display is as follows:



Wait for a stable and press Enter button:



Press Enter button to save the calibration results, and then "Esc" key to return to the display interface.

Marked the electrode slope $S \geq 0.90$ as normal. Then the electrodes were inserted into the 4.01pH or 6.86pH buffer, then the displayed value should be equal to or very close to the standard buffer pH value, the calibration is completed.

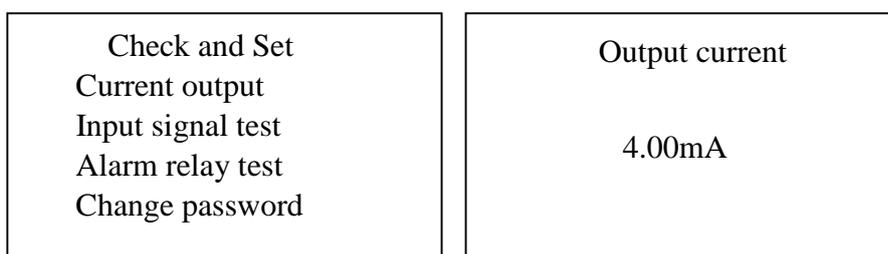
7. The submenu “check and set”

7.1 “Current output”:

This function is mainly used for the correct checking of output current, and with this submenu, the user can check the correctness of meter output current within the full output range. When the meter is connected with the recorder and traditional slave machine, check whether the recorder and slave machine sampling are correct or not, so as to detect the fault.

Input the password before entering the submenu. Afterwards one warning will appear, informing the users that they should guarantee any change in the output current will not bring any negative effect before they use the meter. Press ENTER key to continue. There will display the present output current on the screen. Press ← → ↑ and ↓ keys to change the output current, Press ENTER to stop the changing. Press ENTER again to input the output current what you need.

Notes: When this function is used, the output current is set by the user and it will change within the full range, guarantee that the adjustable regulator connected on the output circuit or microcomputer will not produce any negative effect upon the control output.



High alarm:OFF Low alarm:OFF use ↑ ↓ to change
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7.2 “Alarm relay test”:Into the book menu display as shown above.This function is used for testing the alarm relay output.

7.3“Change password”:After entering this function, input “initial password ”(initial password is 8130), and then input “new password” complete the modification of user password.

7.4“Input signal test”: This function is mainly used for simulated debugging by the meter factory.

7.5“After Service”: This menu shows the after-sales service telephone number, E-mail and Web address.

7.6 Daily maintenance:

Recommendations of the chlorine electrode 3 months maintenance time, If an inspection electrode pin (keep the head of gold and silver tube light), Add filling solution and calibration; 6 to 9 months for chlorine membrane.

8. Whole set

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3) pH electrode	1
4) Measurement of circulation tank	1
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