

Ultrasonic Level Transmitter

취급설명서

[Model : SL-551/SL-552/SL-553]



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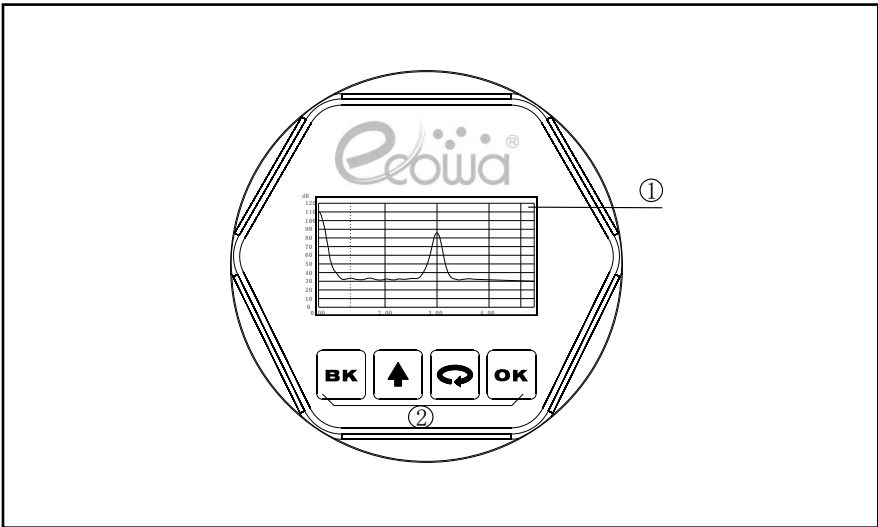
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Display/Adjustment

Adjustments can be done with four buttons on the view point. Optional menu languages are available. View point is only used for display after adjustments. Measurement results would be displayed on the LCD.

Display/Adjustment Module



1 LCD 2 Adjustment Keypad

- [OK]Keypad
- Enter programming mode;
- Confirm programming options;
- Confirm modifications to parameters.

- [↻]Keypad
- Choose programming options;
- Choose the digit of parameters to edit;
- Display the contents of parameters.

- [↑]Keypad
- Modify parameter values.
- Choose display mode

- [BK]Keypad
- Programming mode exit;
- Return to higher menu level.

- Shortcut
- [BK]Display Echo wave

Program instruction Adjustements parameter settings and testings can be done by the four keys on ViewPoint.

Program Menu Structure Menu Structure is shown in the appendix. Turn to next menu itme pointed by right arrow with **OK**. Turn to next menu itme pointed by down arrow with **↻**. Turn to left item with **OK**.

Program Submenu

Basic settings Basic adjustments for the Sensor are included in this menu. They are min adjustment, max adjustment, medium, damping time, Mapping curve, scaled units, scaling, near blanking and sensor tag.

Display In this menu you can setup the sensor display mode and adjust B/W contrast for LCD.

Diagnostic In this menu you can check and test the sensor . You can view the measurement peak values, measurement status, echo-curve and simulation.

Service In this menu you can store false echo curve and current output , units of measurement, language, rest HART operation mode, copy sensor data and PIN.

Info The information of sensor including sensor type, serial number, date of manufacture, software version.

Program operation Enter program mode by press **OK**. press **OK** after each parameter editings. Otherwise the modifiation will be abandoned. PressB K to quit program status.

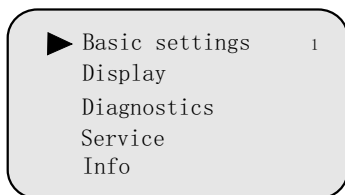
Parameters editing

Parameter editing The first digit of the edited parameter will be displayed in black background on entering parameter editing. Modify the digit with **▲**.Then you can edit next digit with **↻**. After editing, press **OK** to comfirm and store the modification.


Optional item programming Some settings can be done by selecting one of several optional items with **↻** and confirming with **OK**.

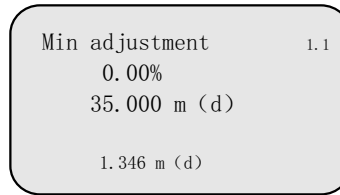
Program menu instruction

1 Basic settings Basic settings are basic setup of the sensor, such as min/max adjustment, medium, damping and etc. To bring the sensor to program mode from run mode, press **OK**. Then the menu is displayed as below




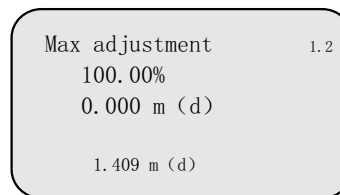
Note :The menu item number is displayed on the top right corner.

-
- 1.1 Min. adjustment The item is one of the two setting points that regulates the linear scaled current output. At main menu(the menu number is 1). Select Basic settings with  and confirm with **OK**. Now the Min. Adjustment is displayed on LCD. the menu item number is 1.1.




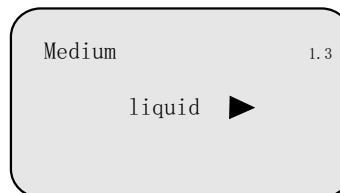
Press **OK**, you can edit the percentage value. Press **OK** again, you confirm the modification, and further more you can edit the corresponding distance value. See parameter edition to learn how to edit parameters.

- 1.2 Max. adjustment The item is one of the two setting points that regulates the linear scaled current output. Pushing  enter this menu when the menu item number is 1.1. LCD displays as below

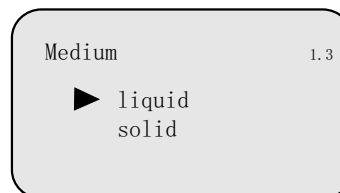



Press **OK**, you can edit the percentage value. Press **OK** again, you confirm the modification, and further more you can edit the corresponding distance value. See parameter edition to learn how to edit parameters.

- 1.3 Medium Each medium has different reflective properties. This menu is used to set the medium to be solid or liquid. Further more, make sure other relative factors. Pushing  enter this menu when the menu item number is 1.2. LCD displays as below

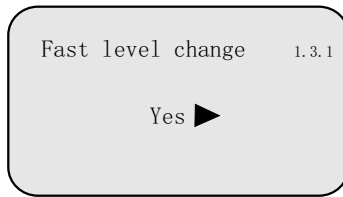


Then pushing **OK** enter medium selection menu .Now LCD displays as below

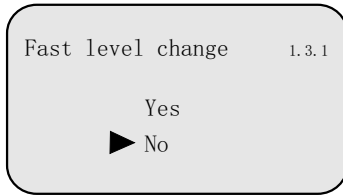


Move arrow with .solid or liquid can be selected . Pushing **OK** will confirm the selection and enter Fast level change submenu.

- 1.3.1 Fast level change Pushing **OK** will enter this menu when it is liquid or solid selection menu and menu item number is 1.3. LCD displays as below



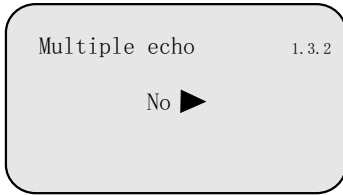
Push **OK** enter Fast level change confirmation. LCD displays as below



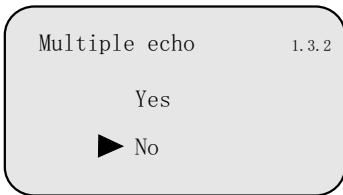
Move arrow with **↔** to Select Yes or No for Fast level change. Then confirm the selection with **OK**.

1.3.2 Multiple echo

Pushing **↔** will enter this menu when the menu item number is 1.3.1 . LCD displays as below



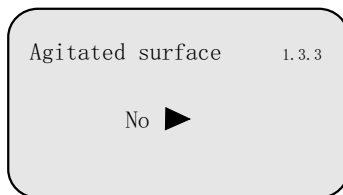
Pushing **OK** enter Multiple echo confirmation. LCD displays as below



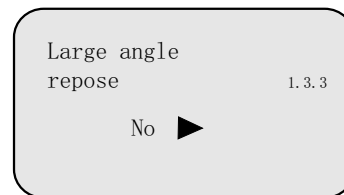
Move arrow with **↔** to Select Yes or No for Multiple echo. Then confirm with **OK**.

1.3.3 Agitated surface/ Large angler repose

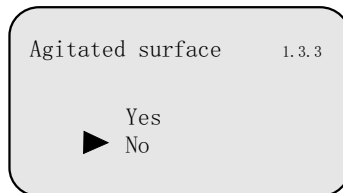
Pushing **↔** will enter this menu when the menu item number is 1.3.2 . LCD displays as below



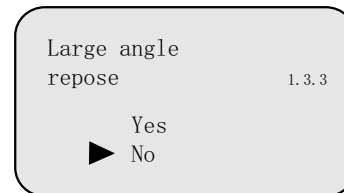
or



Push **OK**,enter Agitated surface/ Large angler repose confirmation. LCD displays as below

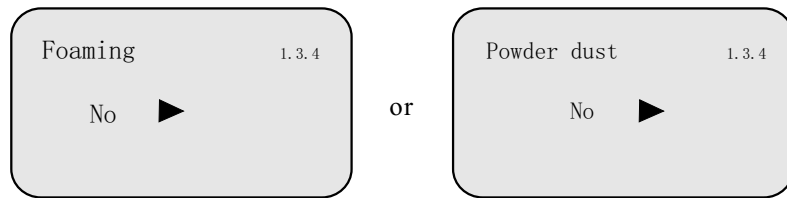


or

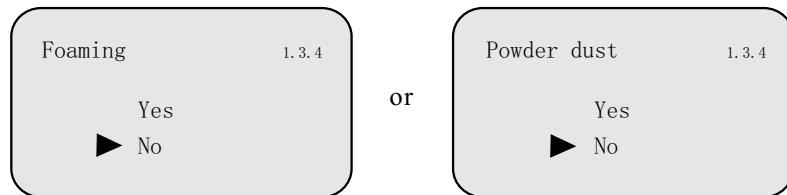


Move arrow with **↶** to Select Yes or No for Agitated surface/ Large angler repose. Then confirm with **OK**.

1. 3. 4 Foaming/Powder dust Pushing **↶** will enter this menu when the menu item number is 1.3.3 . LCD displays as below

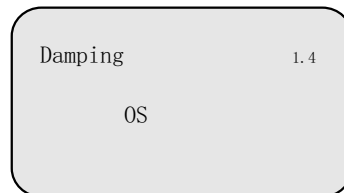


Push **OK**, enter the submenu of Foaming/ Powder dust confirmation. LCD displays as below



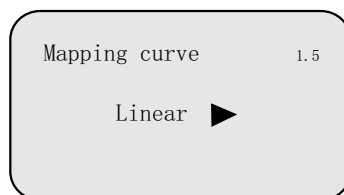
Move arrow with **↶** to Select Yes or No for Foaming/ Powder dust . Then confirm with **OK**.

1. 4 Damping Pushing **↶** will enter this menu when the menu item number is 1.3 . LCD displays as below



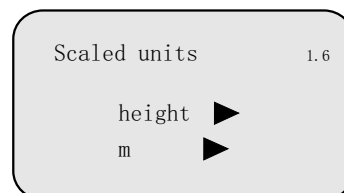
Press **OK**, enter editing menu. See parameter edition to learn how to edit the parameter. Confirm the modification with **OK**, give up with **BK**.


1. 5 Mapping curve This menu define the correlation between the measured value and the current output. linear or non-linear mapping can be selected in this menu. For the non-linear correlations, paramenters setting must be done by a computer previously. Pushing **↶** will select this menu when the menu item number is 1. 4. LCD displays as below




Press **OK**, enter editing menu. Move arrow with **↶** to Select linear or non-linear . Then confirm with **OK**.

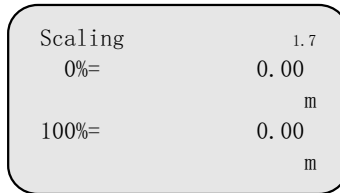
1. 6 Scaled units The unit of the scaled output value can be set in this menu. Pushing **↶** will enter this menu when the menu item number is 1.5. LCD displays as below



Pushing **OK** to enter the editing menu then move arrow with  to select the measure word and corresponding unit, confirm by **OK**.

1.7 Scaling


Used for linear scaled output to set the linear mapping values. Pushing  will enter this menu when the menu item number is 1.6. LCD displays as below

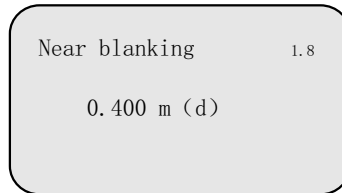


Pushing **OK** to enter the editing menu, see parameter editing for the value editing. Press **OK** to confirm the modification.

1.8 Near blanking

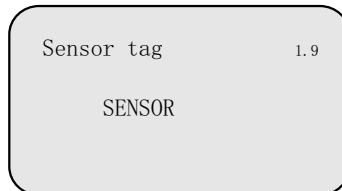
The Near blanking is an area near the antenna where the correct measurement is impossible. The default value is the minimum set by the manufacture.

Press  to enter menu Near blanking when the menu item number is 1.7. See parameter editing to edit the near blanking value and then confirm the modification with **OK**.




1.9 Sensor tag

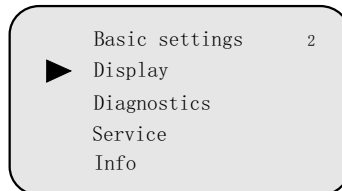
In the menu Sensor TAG you edit a 11-digit measurement loop designation. The character set comprises: Letters from A...Z and Numbers from 0...9.



See Optional item programming to edit the tag name.

2 Display

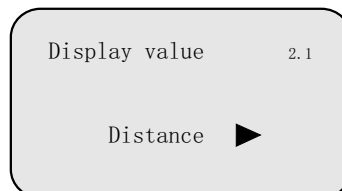
This menu is used to set display mode. Pushing  will select this menu when the main menu item number is 1. LCD displays as below



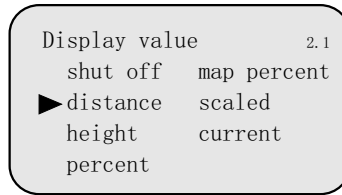
Push **OK**, you get

2.1 Display value

Enter display mode set with **OK**. LCD displays as below



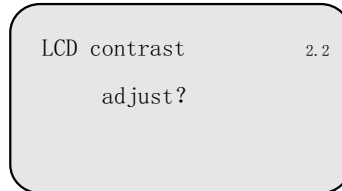
Push **OK**, you can select different display types of the measured value as shown below



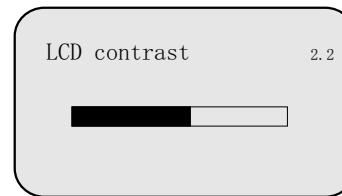
Move arrow to point to the type you want, confirm it with **OK**.

2. 2 LCD contrast adjustment

Pushing **↻** will enter this menu when the menu item is 2. 1. LCD displays as below



Adjust the B/W contrast by pressing **OK**, LCD Displays as below

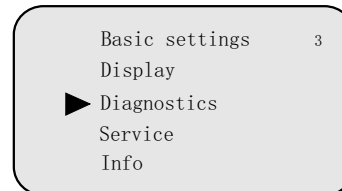


Increase contrast with **▲**, decrease contrast with **↻**.confirm with **OK**.

3 Diagnostics

The running status of the sensor can be provided by the menu Diagnostics, and furthermore sensor testing can be done.

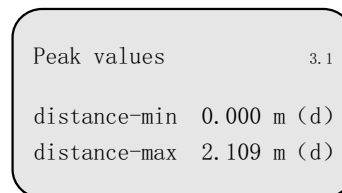
Pushing **↻** to select this menu when the main menu item number is 2. LCD displays as below



Push **OK**, you get

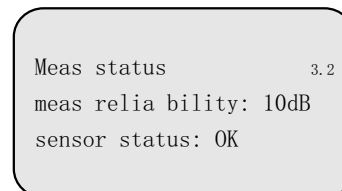
3. 1 Peak values

Peak values record the maximal and mininoal distance. The records can be cleared to zero at menu 4.4.




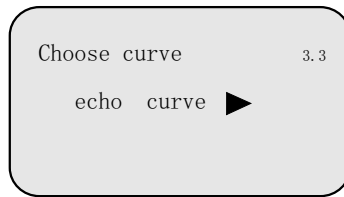
3. 2 Meas. Status (measure)

Pushing **↻** to display measuring status when the menu item is 3.1 . LCD displays as below

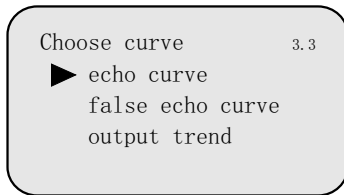


3. 3 Choose curve (echo curve)


At this menu, different curves can be selected to be displayed at menu 3. 4, when the menu item is 3.2 press . you get

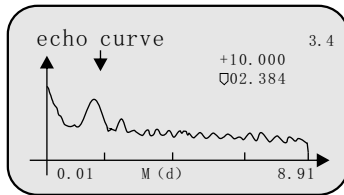


Pushing **OK** to select the curve. There are three curves: echo curve, False echo curve and Output trend curve .



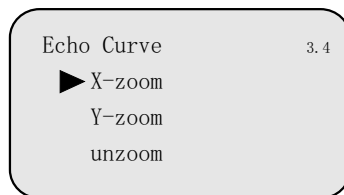
3. 4 Curve


Pushing  will display the selected curve when the menu item is 3.3 . LCD displays as below





Curve zoom


When the curve is displayed, pushing **OK** will enter Curve Zoom function menu.

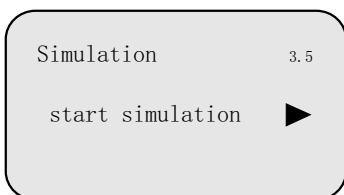


Move arrow with ,select menu item for X/ Y axis zoom or unzoom. Then Confirm with **OK**.

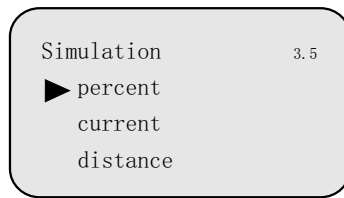
For X axis zoom pushing  to mark the start position for zoom, then confirm with **OK**. Pushing  again to mark the end position for zoom and confirm with **OK**. The selected area of the curve will be shown on the whole screen. Exit zoom with **BK**.

3. 5 Simulation

Simulation is used to simulate the 4~20mA current output. By current output simulation the accuracy and linearity of the current output can be checked. And the system testing can be carried out. Pushing  will enter Simulation menu when the menu item number is 3.4 . LCD displays as below



Pushing **OK** enter Simulation mode selection menu . LCD displays as below



Pushing **↻** select the Simulation mode. Then confirm with **OK**. The corresponding value will be required and then simulation starts.

Three types of simulations

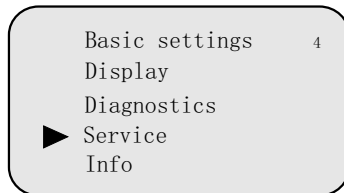
Percent : the output current is decided by a percent value: 100% is relative to 20mA, 0%is relative to 4mA.

Current: the output current is regulated by a current value.

Distance: the output current is decided by a distance value .The current output depends on Min. adjustment (see 1.1) , Max adjustment (see 1.2) and Mapping (see 1.5)

4 Service

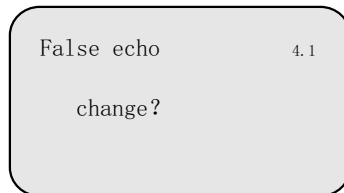
This menu with professional function can only be used by trained technicians. They are False echo storage, Reset, sensor settings back up Password setting and etc.



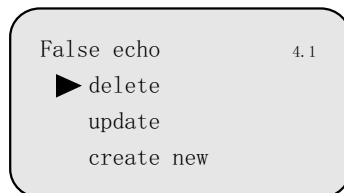
4. 1 False echo

High sockets or vessel installations, e.g. struts or agitators as well as buildup and weld joints on the vessel walls cause interfering reflections which can impair the measurement. A false echo storage detects and marks these false echoes, so that they are no longer taken into account for the level measurement. A false echo memory should be created with empty vessel so that all potential interfering reflections will be detected.

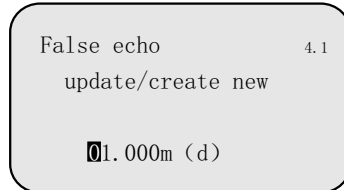
Pushing **OK** will enter this menu when the menu item is 4 . LCD displays as below.



Then push **OK**, LCD displays as below



With **↻** select Update/Create new/Delete a false echo, confirm with **OK**.




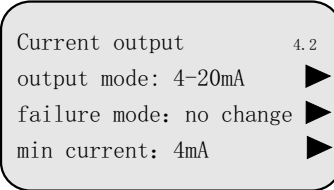
When you select update create /new, you are asked to input a distance value for the real echo. Then push **OK** to confirm it and to start the operation. It will take some time to store the false echo.

Note : Check the distance to the product surface. Because if an incorrect (too large) value is entered, the existing level will be saved as false signal. The filling level would then no longer be detectable in this area.

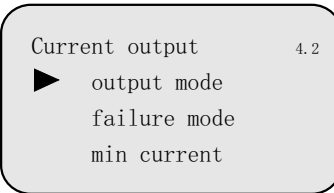
4. 2 Current output

Setup the current output mode.

Pushing  will enter this menu when the menu item is 4.1 LCD displays as below

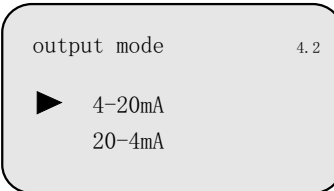



With **OK** you get




Output mode

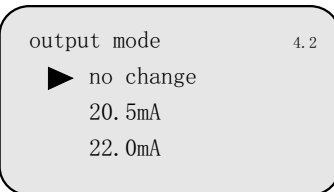
Select output current as 4-20mA or 20-4mA. 4-20mA mean the Min. level is corresponding to 4mA and the Max. level is corresponding to 20mA. 20-4mA mean the Min. Level is corresponding to 20mA and the Max. level is corresponding to 4mA. When the arrow points at output mode, push **OK** you get




Push , you select the item you want and confirm with **OK**.

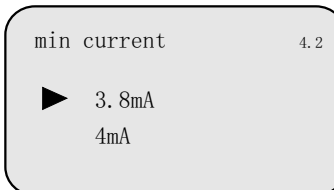
Failure mode


Setup the output current on sensor error. Three status are available. When the arrow points at output mode, push , you get item failure mode and confirm with **OK**. you get



Min. current

Setup the minimal output current is 4mA or 3.8mA. When the arrow points at fail mode, push , you get min. current menu. Confirm with **OK**. you get



Select the item you want with  and confirm with **OK**.

4. 3 Reset

With the reset function, modified settings are reset. Three subfunctions are available:

Basic settings


-Reset settings modified with View Point to the default values.

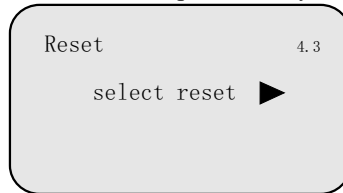
Factory settings

-Reset special settings as well as basic settings to default values.

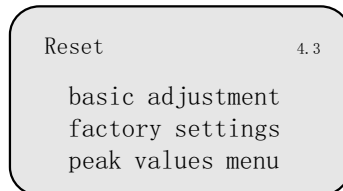
Peak measured values

-Reset the min./max. level records.

When the menu item is 4. 2, push , you get



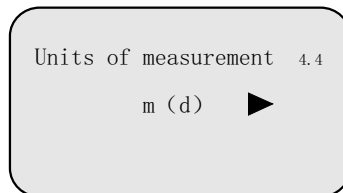
Push **OK**, LCD displays as below



Select the item with  confirm with **OK**.

4. 4 Units of measure

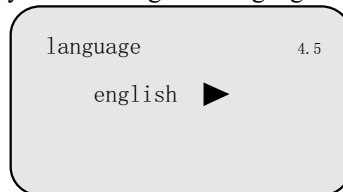
Two sets of measure system units are available. The metric system and the British system.



Push **OK**, to edit it.

4. 5 Language

In this menu you can change the language. English and Chinese are available.

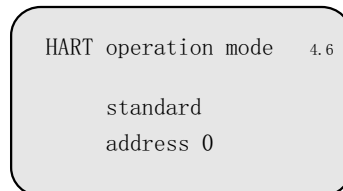


Push **OK**, to change it.

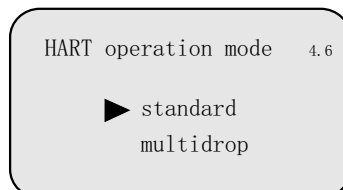
4. 6 HART operation mode

HART offers standard and multidrop mode. The standard mode with the fixed address 0 means output of the measured value as 4...20 mA signal. In multidrop mode, up to 15 sensors can be operated on one two-wire cable.

In this menu you determine the HART mode and enter the address for multidrop.



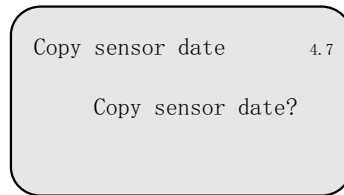
Push **OK**, you can select HART operation mode.



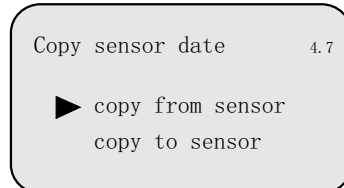
The default setting is standard mode with address 0.

4.7 Copy sensor data

In this menu you can back up the sensor settings so as to restore them when necessary.



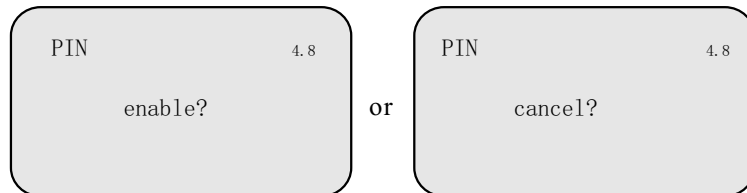
Push **OK**, LCD displays below



Copy from sensor means to save the sensor settings and copy to sensor means to restore the sensor settings.

4.8 PIN

In this menu, the PIN is activated/inactivated permanently. Entering a 4-digit PIN protects the sensor data against unauthorized access and unintentional modifications.



5 Info


In this menu some important sensor information can be displayed:

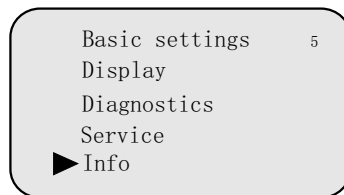
Sensor type, e.g. GDRD51

Serial number: 6-digit number, e.g. 123456

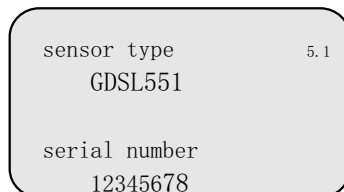
Date of manufacture, e.g. 2006-01-01

Software version, e.g. 06.08.28

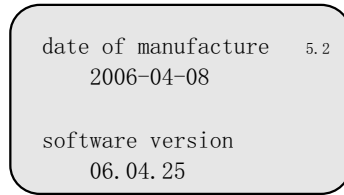
Pushing  will select this menu when the main menu item number is 4. LCD displays as below



Then pushing **OK** enter the Info display menu. LCD displays as below



Pushing  LCD displays as below



Example: To display echo curve do as follow:

- 1、 Push **OK** to enter program status. Main menu is displayed on LCD.
- 2、 Push **↶** twice to select Diagnostics submenu item.
- 3、 Push **OK** to enter the submenu menu number is 3.1.
- 4、 Push **↶** to enter next menu, the menu number is 3.2.
- 5、 Push **↶** again ,the menu number is 3.3.
- 6、 Push **OK** to enter the curve select menu (3.3).
- 7、 Set arrow to point to Echo Curve with **↶**.
- 8、 Push **OK** to confirm.
- 9、 Push **↶**, the echo curve will be shown. Menu number is 3.4.
- 10、 Push **OK** to enter curve zoom menu.
- 11、 Push **↶** to select X zoom.
- 12、 Push **OK** to confirm.
- 13、 Push **▲** to mark the start position.
- 14、 Push **OK** to confirm.
- 13、 Push **▲** to mark the end position.
- 14、 Push **OK** to confirm. The area of the curve you select will be shown on the whole screen.
- 15、 Push **BK** several times to return to run state.

Note: Shortcut key **BK** can display echo curve on measurement mode, but it has no zoom functions.

Appendix

