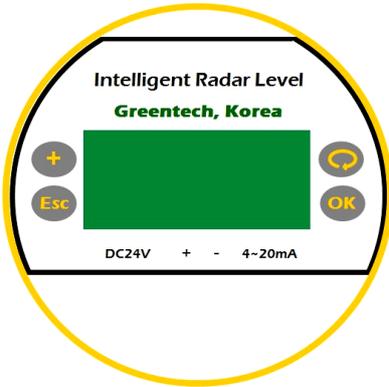# Programming Menu

RD2690, RD6850 series

Brief Introduction :

Shown as the figure right, there are four buttons in the indication face board, by pressing which, you can set and debug the instrument. Menu languages are selectable. After setting or calibration, LCD indicates measured values, which can be read clearly through a glass window.

Following bellows are functions of the four buttons:

Button :

" OK "	Enter editing state Confirm settings Parameter modification saves	
" ↻ "	Selecting a setting item Selecting digits of edited parameters Indicating the content of the selected parameter Note: hereinafter the button is called as "KEY SELECTION" for easy-understanding.	
" + "	Amending values of parameters Selecting model of indication	
" Esc "	Exit from editing state Returning back to the previous menu Shifting between measured values and chart of echoes during operation	

Interpretation of terms :

Programming interpretation: Using the four buttons at the indication board can perform parameters setting, debugging and test, etc.
Structure of programming menu: For the structure of menu, please refer to the attached table one.
The movement of the horizontal arrows to right can be done by button *"OK"*.
The movement of the vertical arrow downwards can be performed by button *"SELECTION"*.
Button *"Esc"* for the movement to left for the horizontal arrow.

Submenu :

Basic setting: Basic setting includes the settings for basic parameters, lower position adjustment, higher position adjustment, the character of the medium, damping time, signal threshold, output mapping, calibration unit, calibration, setting length of probe, dead band, sensor label.

Indication: includes indicating content, LCD contrast.

Diagnosis: perform checking and test. Mainly include measuring peak value, measuring state, select chart, ECHO GRAPH and simulation.

Service: including false echo, current output, reset, measuring unit, language, HART working mode, copying sensor data, cipher, and deviation of distance.

Information: basic information includes type of sensor, series number, production date, version of software. Instrument in the running state press the **"OK"** button to enter programming state, display programming main menu. Each parameter editor to finish, with **"OK"** button confirmation, otherwise the editor is invalid. When done editing, press the **"Esc"** key to exit programming state, to return to running status. The editor at any time can press the esc key to give up programming, exit parameters of programming state.

Editing method (character/ figure parameter programming): when entering character/ figure programming state, the first digit of the edited parameter will become black, at this time, press button **"+"** to change the character or figure until the required character or figure appear. Press button **"SELECTION"**, character or figure will turns black in order, then edit them one by one. When finish, press button **"OK"** for confirmation.
Optional parameters editing: optional parameter is defined as a plurality of selected parameters in the editing item, which can selected by user. Press button **"SELECTION"**, move the arrow the position where the needed parameter is. Press button **"OK"** for confirmation.
Note: the upper right corner of the screen, a digital representation of the menu.

1. Basic settings

1.1. Low position adjustment:

Low position adjustment is for measuring range setting. It determines the proportion of output current linearity corresponding relationship together with high position adjustment. In main menu, when the menu number is 1, press button OK, enter the submenu of basic settings. LCD indicates as follows:

> **LOW POSITION ADJUSTMENT   1.1**
> **0.00%**
> **35.000m (d)**
> **1.346m (d)**

Press button OK, enter programming low position percentage, refer to the previous stated character/figure parameter editing method in parameter editing method to edit the percentage value and distance value. After editing, press button OK for confirmation, or press button ESC for quitting editing.

1.2. High position adjustment:

High position adjustment is for measuring range setting. It determines the proportion of output current linearity corresponding relationship together with low position adjustment. When LCD indicates the menu number 1.1, press button SELECTION, enter high position adjustment. LCD indicates as follows:

> **HIGH POSITION ADJUSTMENT   1.2**
> **100.00%**
> **0.000m (d)**
> **1.346m (d)**

At this time, you can edit the high position adjustment with button OK.

1.3. Medium properties:

When LCD indicates menu number 1.2, press button SELECTION, enter medium properties editing. Medium properties menu is for selecting solid, liquid or micro DK, thus further select material property to some other factors affect the measurement. LCD indicates as follows:

> **MEDIUM PROPERTIES   1.3**
> **LIQUID**
> **MEDIUM PROPERTIES   1.3**
> **LIQUID**
> **SOLID MICRO DK**

1.3.1 Level quick change: When select liquid or solid in the medium properties, press button OK, enter quick change menu. LCD indicates:

> **LEVEL QUICK CHANGE   1.3.1**
> **YES**

Press button OK again and enter quick change menu. LCD indicates as follows:

> **LEVEL QUICK CHANGE   1.3.1**
> **YES**
> **NO**

1.3.2. **Select the first wave:** When select liquid or solid in medium properties, while LCD indicates menu 1.3.1,
press key SELECTION to select the next menu and enter the first wave selection menu. LCD indicates as follows:

SELECTING THE FIRST WAVE	**1.3.2**
NORMAL	

Press button OK again, enter the first wave selection menu, LCD indicates as follows:

SELECTING THE FIRST WAVE	**1.3.2**
NORMAL	**LITTLE STRONGER**
WEAKEN	**STRONGER**
	STRONGEST

There are five methods of the first wave selection by press button SELECTION:
NORMAL: DO NOTHING FOR THE FIRST WAVE AMPLITUDE (DEFAULT)

WEAKEN: THE FIRST WAVE AMPLITUDE WEAKEN	**10dB**
LITTLE STRONGER: THE FIRST WAVE STRENGTHEN	**10dB**
STRONGER: THE FIRST WAVE STRENGTHEN	**20dB**
STRONGEST: THE FIRST WAVE STRENGTHEN	**40db**

1.3.3. **(Liquid) Surface wave:** When the medium is liquid, LCD indicates the menu number 1.3.2, press button
SELCTION to select the next menu and enter the menu of surface wave, LCD indicates as follows:

SURFACE WAVE	**1.3.3**
NO	

Press button OK again and enter the menu of surface wave, LCD indicates as follows:

SURFACE WAVE	**1.3.3**
YES	
NO	

1.3.3. **(Solid) big stack angle:** When the medium is solid, LCD indicates the menu number 1.3.2, press button SELCTION to select the next menu and enter the menu of big stack angle, LCD indicates as follows:

STACK ANGLE BIG	**1.3.3**
NORMAL	

Press button OK again and enter stack angle big selection menu, LCD indicates as follows:

STACK ANGLE BIG	**1.3.3**
YES	
NO	

1.3.4. **(Liquid) Foam:** When LCD indicates the menu number 1.3.3, press button SELECTION select the next menu and enter form menu, LCD indicates as follows:

> **FOAM**   **1.3.4**
> **NO**

Press button OK again, enter form selection menu, LCD indicates as follows:

> **FOAM**   **1.3.4**
> **YES**
> **NO**

1.3.4. **(Solid) Foam:** When LCD indicates the menu number 1.3.3, press button SELECTION select the next

menu and enter heavy dust selection menu, LCD indicates as follows:

> **HEAVY DUST**   **1.3.4**
> **NO**

Press button OK again, enter heavy dust selection menu, LCD indicates as follows:

> **HEAVY DUST**   **1.3.4**
> **YES**
> **NO**

1.3.5. **DK small value:** When LCD indicates 1.3.4, press button OK and enter DK adjustment menu, LCD indicates as follows:

> **DK VALUE SMALL**   **1.3.5**
> **NO**

Press button OK again and enter liquid DK adjustment menu, LCD indicates as follows:

> **DK VALUE SMALL**   **1.3.5**
> **YES**
> **NO**

Press button SELECTION to select "YES" and set the measurement when DK value is small. LCD indicates as follow, then input accurate empty cans empty high value. This value will be used to judge the position of the tank bottom in order to decrease the reflection from the bottom, LCD indicates as follows:

> **DK VALUE SMALL**   **1.3.5**
> **YES. DISTANCE WHEN TANK IS EMPTY**   **3.00m**

1.3.6. **(Liquid) Guided wave pipe setting:** When LCD indicates the menu number 1.3.5, press button SELECTION and enter the guided wave pipe setting menu, LCD indicates as follows:

> **GUIDED WAVE PIPE MEASUREMENT**   **1.3.6**
> **NO**

Press button OK, enter guided wave pipe measurement selecting menu, LCD indicates as follows:

> **GUIDED WAVE PIPE MEASUREMENT**   **1.3.6**
> **YES**
> **NO**

Press button SELECTION and select "YES", and press button OK to enter guided wave pipe diameter setting menu, LCD indicates:

> **GUIDED WAVE PIPE MEASUREMENT**   **1.3.6**
> **GUIDED WAVE PIPE DIAMETER**   **0000mm**

Note: guided wave pipe setting can keep valid only when a guided wave pipe is mounted.

1.3.7 Micro DK: When select the medium properties as micro DK, press button OK to enter micro DK setting, LCD indicates as follows:

MICRO DK SETTING	**1.3.1**
DISTANCE WHEN TANK EMPTY	**10.00m**
MEDIUM LEVEL	**0.00m**
DK 0.020m(d)	**1.00**

When select medium property as micro DK, it is used for the case, when the dielectric constant is less than 1.4, the echoes directly from medium surface is very weak, or the measurement cannot be performed. With the method of bottom reflection the medium level can be measured. Then you have to input two values of the parameters listed below: 1. distance when tank empty. 2. medium actual level value or the dielectric constant of the medium to be measured, these two values are related, it is ok to input one of them. The accuracy of the mentioned above values can directly influence the accuracy of the measurement result.

Note: Please carefully choose "MICRO DK". It is not suitable for the most of measurement. After selecting MICRO DK, according to the situation of echoes, the instrument will adopt using direct echo method or bottom reflection method to get the measurement result.

1.4 Damping time:

Damping time: When LCD indicates the menu number 1.3, press button SELECTION, enter damping time setting menu, LCD indicates as follows:

DAMPING TIME:	**1.4**
6S	

Press button OK, enter parameter edit mode. Press button "+" to set the figures. Press button SELECTION to select the figure digit to be edited. Then press button OK for confirmation.

1.5. Output mapping:

Output mapping: output mapping is used for selection between nonlinearity output mapping and linearity mapping set from a host computer. When LCD indicates the menu number 1.4, press button SELECTION to enter output mapping editing menu. LCD indicates as follows:

OUTPUT MAPPING	**1.5**
LINEARITY	

Press button OK to enter parameter selection mode. Press button SELECTION to select linearity or other selectable mapping modes, for example, linearity, horn, etc. Press button OK for confirmation after editing. When select linearity output mapping, it will be used for selecting different units.

1.6. Calibration unit:

Calibration unit: When LCD indicates the menu number 1.5, press button SELECTION to enter calibration unit setting menu. LCD indicates as follows:

CALIBRATION UNIT	**1.6**
HEIGHT	**m**

Press button OK to enter parameter selection mode, then press button SELECTION for confirmation, and select the corresponding unit, press button OK for confirmation. When select linearity output mapping, it will be used for determining concrete mapping relationship.

1.7. Calibration:

Calibration: When LCD indicates the menu number 1.6, press button SELECTION to enter calibration setting menu. LCD indicates as follows:

CALIBRATION	1.7
0%=	0.00 m
100%=	0.00 m

Press button OK, the area of parameter become black, press button SELECTION to set the decimal point, press button OK for confirmation. The parameters area corresponds to 0% become black. Press button SELECTION and button "+" for setting parameters.
Then press button OK for confirmation. For setting the values corresponding to 100%, the steps and methods are the same.

1.8. Setting measuring range:

Setting measuring range: In order to get correct measuring result, measuring range has to be set.
When LCD indicates the menu number 1.7, press button SELECTION to enter measuring range setting menu. LCD indicates as follows:

MEASURING RANGE SETTING   1.8
00.000m(d)

Press button "OK", the corresponding parameters turn black, press button SELECTION or button "+" for setting parameters, then press button OK for confirmation.

1.9. Dead zone:

Dead zone: When there is a fixed obstacle close to the propagator, it interferes the measurement, when the maximum medium level cannot be up to the obstacle, using dead zone setting can avoid measurement mistake.
When LCD indicates the menu number 1.8, press button SELECTION to enter dead zone setting menu. LCD indicates as follows:

DEAD ZONE   1.9
0.300m(d)

Press button OK, the corresponding parameters turn black, press button SELECTION or button "+" for setting parameters, and press button OK for confirmation.

1.10. Sensor tag:

When LCD indicates the menu 1.9, press button SELECTION to shift the menu to sensor tag indicating item, LCD indicates as follows:

SENSOR TAG   1.10
SENSOR

2. Indications:

2.1. When enter editing with indication, LCD indicates as follows:

This function is used for editing with indication. When LCD indicates main menu, press button SELECTION
to move the arrow to indicating item. LCD indicates as follows:

> BASIC SETTING   2
> INDICATION DIAGNOSE SERVICE MESSAGE

Press button OK to enter editing with indication.

> INDICATING CONTENT   2.1
> DISTANCE

When the current indicated parameter is distance, i.e., the instrument indicates measured distance. Press button Ok to enter editing mode. LCD indicates as follows:

> INDICATING CONTENT   2.1
> NO WORKING   MAPPING PERCENTAGE
> DISTANCE   CALIBRATED VALUE
> MEDIUM LEVEL   CURRENT
> PERCENTAGE

When press button SELECTION to move the arrow to the required item and press button OK for confirmation. After editing, press button "ESC", exit indication programming and go back to the previous menu.

2.2. LCD contrast adjustment:

When LCD indicates the menu number 2.1, press button SELECTION to enter LCD contrast menu. LCD indicates as follows:

> LCD CONTRAST   2.2
> ADJUSTMENT?

Press button OK to enter adjustment mode.

> LCD CONTRAST   2.2

Press button SELECTION or button "+" to increase or decrease contrast, press button OK for confirming the operation and save the setting.

3. Diagnose:

When LCD indicates main menu, press button SELECTION to move the diagnosis of the arrow, LCD indicates as follows:

> BASIC SETTING
> INDICATION
> DIAGNOSE
> SERVICE
> INFORMATION

The function of diagnose can be used for testing the working conditions of the instrument and other parts and debugging the system. Press button OK to enter the function of diagnose.

3.1. Peak measurement:

Peak indication is the indication of the distance peak during the measurement. This parameter can be deleted with the reset under item 4.4 of service menu. LCD indicates as follows:

> MEASUREMENT PEAK   3.1
> MINIMUM DISTANCE VALUE   0.000 m (d)
> MAXIMUM DISTANCE VALUE   2.109 m (d)

3.2. Measurement mode:

When LCD indicates the menu number 3.1, press button SELECTION to enter the next diagnose mode. LCD indicates as follows:

MEASUREMENT MODE	**3.2**
MEASUREMENT RELIABILITY:	**20 dB**
SENSOR MODE:	**OK**

3.3. Curve selection:

When LCD indicates the menu number 3.2, press button SELECTION to enter graph indication mode. LCD indicates as follows:

CURVE SELECTION	**3.3**
ECHO GRAPH	

When need to select other curves, press button OK to enter curve selection menu. LCD indicates as follows:

CURVE SELECTION	**3.3**
ECHO GRAPH	
FALSE ECHO GRAPH	
OUTPUT TREND CURVE	

Press button SELECTION to move the arrow to the point which is required to be indicated along the curve, press button OK for confirmation.

3.4. ECHO GRAPH:

When LCD indicates the menu number 3.3, press button SELECTION to make LCD indicate the selected curve. The function of curve zoom can be used to amplify the curve along the axes of time and amplitude so that it to be read clearly. When LCD indicates graph, press button OK to enter curve zoom editing menu. LCD indicates as follows:

CURVE ZOOM	**3.4**
ZOOM ALONG AXIS X	
ZOOM ALONG AXIX Y	
NO ZOOM	

Press button SELECTION to move the arrow for selecting zoom direction or no zoom, press button OK for confirmation. When select zoom along axis X, press button SELECTION to move the start point to the place where it is needed, press button OK for confirmation. Press button SELECTION again to move the end point to the place where it is needed, press button OK for confirmation. At the time, the area selected is amplified up to the whole screen. Press button "ESC" to exit the curve indication.

3.5. Simulation:

Simulation is to simulate output 4-20mA, which is used to if output of instrument is normal.
Meanwhile, it can be used for system debugging. When LCD indicates the menu number 3.4, press button
SELECTION to enter simulation mode. LCD indicates as follows:

SIMULATION	**3.5**
START SIMULATION	

Press button OK for confirm simulation, LCD indicates as follows:

SIMULATION	**3.5**
PERCENTAGE	
CURRENT	
DISTANCE	

Press button SELECTION to select current output mapping mode, press button OK for confirming entering the set menu. After setting the figures, press button OK for confirmation. At this time, the set value of the current output corresponds to the current value.

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Note: Three alternative menus illustration percentage: output current according to the given percentage. For example, 100% corresponds to 20mA, 0% corresponds to 4mA. Current: output current according to the given current value. For example, 16.6mA corresponds to 16.6mA. Distance: output current according to distance value (this relationship between this value and the current value can be determined by 1.1. low position adjustment, 1.2. high position adjustment and 1.5. output mapping).

4. Service:

The menu of service contains more professional functions, which will be used for people who have been trained. Main functions are for false echo setting, time variable gain, reset and parameters storage, etc. When LCD indicates main menu, press button SELECTION to move the arrow to the item of service. LCD indicates as follows:

> **BASIC SETTING**
> **INDICATION**
> **DIAGNOSE**
> **SERVICE**
> **MESSAGE**

4.1. False echo:

When there is a fixed obstacle which is interfering the measurement, you can use the function of false echo setting to overcome its interference. When LCD indicates the main menu and the menu number is 4, press button OK to enter service submenu, LCD indicates as follows:

> **FALSE ECHO**   **4.1**
> **AMEND IT?**

Press button OK, LCD indicates as follows:

> **FALSE ECHO**   **4.1**
> **DELETE**
>
> **UPDATE**
> **NEW CREATING**
> **EDIT**

When you want to update or generate a false ECHO GRAPH, press button SELECTION to move the arrow to the needed item, then press button OK for confirmation. LCD indicates as follows:

> **FALSE ECHO**   **4.1**
> **UPDATE/NEW CREATING**   **1.000mm**

LCD asks to input the real echo distance value, after inputting the distance value, press button OK for confirmation. LCD indicates waiting, and then the instrument enters the state of false echo setting. When it finishes, LCD goes back to false echo setting menu.
Note: the difference between "updating false ECHO GRAPH" and "generating false ECHO GRAPH" is that "new false echo curve" is to edit a false echo curve; "Update false echo curve" is the original before false echo curve based on the edit update.

When you want to delete the false ECHO GRAPH, press button SELECTION to move the arrow to the needed item, and then press button OK for confirmation. LCD asks waiting. The instrument is processing deleting the false echo. After finish, LCD goes back to false echo setting menu.

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When you want to edit the false ECHO GRAPH, press button SELECTION to move the arrow to the needed item and then press button OK for confirmation. This function can edit or modify the created false echo to adapt the request of special working conditions. After entering the false echo edition, LCD indicates as follows:
(Note: this menu needs professional person for operation):

> **FALSE ECHO EDITION**
> **START POINT 1.00 AMPLITUDE 1300m(d)**
> **END POINT 2.00 AMPLITUDE 1500m(d)**

Two points can be edited a time, the start point and the end point are the coordinates for the curve which is needed to be edited. The following corresponding value of amplitude is the value to be edited (Note: when input or alter the distance coordinates, the corresponding amplitude will automatically be updated according to the currently saved value which will act as reference for amplitude modification).

When the modification for the two pairs of coordinates is finished, press button OK for confirmation of the modification. The instrument will automatically link the two points and create a new false ECHO GRAPH, substitute for the old curve. Press button OK for confirmation, LCD will indicate the false ECHO GRAPH after the modification this time for reference.

And then press button ESC, LCD goes back to the edition interface for further edition. When the false echo edition reach to the request of the working conditions, press button ESC again, LCD exits false echo edition menu. Then LCD indicates as follows:

> **FALSE ECHO EDITION**
> **SAVE IT?**

Press button OK for saving for what have been modified above. Press button ESC for giving up the current modification.

4.2. Output mode:

This setting is for setting current output mode. When LCD indicates the menu number 4.1, press button SELECTION, LCD indicates as follows:

> **CURRENT OUTPUT**
> **OUTPUT MODE: 4-20mA**
> **FAULT MODE: NO CHANGE**
> **MINIMUM CURRENT: 4mA**

When LCD indicates current output mode for selection of 4-20mA or 20-4mA, 4-20mA means that low medium level corresponds to 4mA, high medium level corresponds to 20mA: 20-4mA means that low medium level corresponds to 20mA, high medium level corresponds to 4mA.
When LCD indicates current output selection menu 4.2, press button SELECTION to move the arrow to the output mode and press button OK for confirmation, then LCD indicates as follows:

> **OUTPUT MODE 4.2**
> **NO CHANGE**
> **20.5mA**
> **22.0mA**
> **4.0mA**

Press button SELECTION to select the setting you need, press button OK for confirmation.
Minimum current is used for selecting the minimum current as "4mA" or "3.8mA". When LCD indicates current output selection menu 4.2, press button SELECTION to move the arrow to "minimum current", and then press button OK for confirmation. LCD indicates as follows:

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> **MINIMUM CURRENT**   **4.2**
> **3.9mA**
> **4mA**

Press button SELECTION for the selected setting, press button OK for confirmation.

4.3. Reset the function of reset is used for the reset of finished parameters.

There are four reset functions: basic setting, factory setting, peak measurement and accumulated flow. Basic setting is to recover different kinds of parameters in basic setting items back to factory default setting. Factory setting is to recover all parameters back to factory fault setting. Measurement peak setting is to clear the peak measurement in the diagnosis. Reset for accumulated flow is to clear the accumulated flow when the instrument is used for measuring the flow of open channel. When LCD indicates current output (menu number 4.2), press button SELECTION to enter reset function, LCD indicates as follows:

> **RESET**   **4.3**
> **SELECTING RESET**

Press button OK to enter the reset selection menu, select the corresponding reset function item for resetting according to the needs.

4.4. Measuring unit:

There are two choices of measuring units for users, one is the metric system, the other is imperial system. When LCD indicates menu number 4.3, press button SELECTION to enter measuring unit setting menu, LCD indicates as follows:

> **MEASURING UNIT**   **4.4**
> **M (d)**

Press button OK to enter the measuring unit selection menu, select the unit according to the needs.

4.5. Language:

There are four choices of languages for users, they are Chinese, English, French and Italian.
When LCD indicates measuring unit menu number 4.4, press button SELECTION to enter language setting, and LCD indicates as follows:

> **LANGUAGE**   **4.5**
> **ENGLISH**

Press button OK for entering the languages selection menu and select the language you need.

4.6. HART mode:

When two or more than two instruments are connected to a computer with HART communication interface, use this function to set the instrument into multiple working mode. When LCD indicates language menu number 4.5, press button SELECTION to enter working mode menu. LCD indicates as follows:

> **HART WORKING MODE**   **4.6**
> **STANDARD**
> **ADDRESS**   **0**

Press button OK to enter HART working mode setting interface, LCD indicates as follows:

> **HART WORKING MODE**   **4.6**
> **STANDARD MULTIPLE**

Press button SELECTION to select standard or multiple working modes.

The address of the instrument is "0" when select standard working mode. When select HART working mode as multiple, LCD indicates as follows:

HART WORKING MODE	**4.6**
ADDRESS	**0**
POWER SUPPLY	**4mA**

The address can be changed from 1-15. Working current 4mA and 8mA can be selected. Press button OK for confirmation.

4.7. Copy sensor data:

copy sensor data, there are two submenus: from "COPY FROM SENSOR" to "COPY TO SENSOR". This function is used for the safety of the instrument parameters. When technician finish setting the instrument parameters according to the working conditions, you can use the function of "COPY FROM SENSOR" to protect or save the set parameters.

Once the parameters are altered accidently, you can use the function of "COPY TO SENSOR" to recover them.

When LCD indicates HART working mode submenu number 4.6, press button SELECTION to enter "copy sensor data functions". LCD indicates as follows:

COPY SENSOR DATA	**4.7**
COPY TO SENSOR?	

Press button OK, LCD indicates as follows:

COPY SENSOR DATA	**4.7**
COPY FROM SENSOR	
COPY TO SENSOR	

Press button SELECTION to select the menu you need, and press button OK for confirmation and perform the function.

4.8. Password:

Password is used for the safety of the parameters. Once the function is actuated, you have to input the password every time when you want to change a parameter.

When the right passwords are input, the protection function will be cancelled. Then you can modify the parameters.

When LCD indicates menu number 4.7, press button SELECTION to enter the password function. LCD indicates as follows:

PASSWORD	**4.8**
ACTUATE IT?	
Or PASSWORD	**4.8**
CANCELL IT?	

Press button OK to actuate password function and set password or cancel it.

4.9. Distance offset:

Distance offset is used for modifying the measurement error, which is the difference between actual distance and the indicated distance.

When LCD indicates menu number 4.8, press button SELECTION to enter distance offset menu. LCD indicates as follows:

DISTANCE OFFSET	**4.9**
+0.000m (d)	

Press button OK for confirmation, then press button "+" and button SELECTION to set offset. Finally press button OK for confirmation.

4.10. Signal threshold:

Threshold setting used to set up effective echo threshold size, the greater the threshold value set for the effective echo amplitude are stronger, more conducive to eliminate small signal noise interference; But need to pay attention to: if modified threshold value is greater than the effective echo

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amplitude, can cause false echo results.

The menu includes echo threshold and envelope amplitude. Among them, the echo threshold value of the default value is sixty mv, envelope amplitude default value for 10 mv. (Note: this menu need by professional operation).

When LCD indicates the menu number 4.9, press key SELECTION to enter output mapping editing menu, LCD indicates as follows:

SIGNAL THRESHOLD	**4.10**
Echo threshold	**60mV**
Envelope amplitude	**10mV**

Press button OK and enter editing mode, press button "+" to set figures. Press button OK for confirmation after editing.

Echo graph indication steps are as follows:

Method 1:

1. Press button OK to enter the programming state, LCD indicates program main menu
2. Select submenu: press button SELECTION to move the arrow to the diagnosis submenu 3, the number "3" is indicated at the right upper corner of the screen.
3. Press button OK for confirmation. Enter the diagnosis submenu 3.1 for indicating measurement peak: minimum distance and maximum distance.
4. Press button SELECTION to next programmable item for indicating measurement state 3.2: measurement reliability, sensor state:
5. Press button SELECTION again, enter selecting curve submenu 3.3.
6. Press button OK, enter parameters selection menu:
7. Press button SELECTION to move the arrow to select "ECHO GRAPH", press button OK for confirmation.
8. Press button SELECTION for indicating ECHO GRAPH 3.4.
9. Press button OK to enter curve zoom menu.
10. Press button SELECTION to zoom at axis X, press button OK for confirmation.
11. Press button SELECTION to move "the start point" to the place or point you need, press button ESC for confirmation.
12. Press button SELECTION to move "the end point" to the place or point you need, press button OK for confirmation. At this time, the selected curve has been magnified up to the whole screen.
13. Press button ESC continuously until the instrument go back to operation state.

Method 2:

Under main menu, press button ESC directly.
This is shortcut for indicating the ECHO GRAPH.

Attached Diagram

BASIC SETTING	1
INDICATION	2
DIAGNOSIS	3
SERVICE	4
INFORMATION	5

MEAS. PEAK	3.1	→	MIN. DISTANCE / MAX. DISTANCE
MEAS. STATE	3.2	→	MEAS. RELIABILITY / SENSOR STATE
CURVE SELECT	3.3	→	ECHO GRAPH / FALSE ECHO GRAPH / OUTPUT TRENDS GRAPH
ECHO GRAPH	3.4	→	CURVE ZOOM → ZOOM AT AXIS X / ZOOM AT AXIS Y / NO ZOOM → 1X / 2X / 5X / 10X
SIMULATION	3.5	→	PERCENTAGE / CURRENT / DISTANCE

FALSE ECHO	4.1	→	DELETE / UPDATE / NEWLY CREAT / EDITION
OUTPUT MODE	4.2	→	OUTPUT MODE / FAULT MODE / MIN. CURRENT
RESET	4.3
MEAS. UNIT	4.4	→	M (d) / F t (d)
LANGUAGE	4.5	→	CHINESE / ENGLISH / ITALIAN / FRECH
HART MODE	4.6	→	STANDARD / MULTIPLE POINTS
COPY SENSOR DADA	4.7	→	COPY FROM SENSOR / COPY TO SENSOR
PASSWORD	4.8
DISTANCE OFFSET	4.9
THRESHOLD SETTING	4.10	→	ECHO THRESHOID / ENVELOPE AMPLITUDE

| SENSOR TYPE SERIES NUMBER | 5.1 | → | PRODUCTION 5.2 / SOFTWARE VERSION |

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