

Conductivity Controller



6000 Series



800 Series

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Unpacking instruction

Check for any damages on the content after unpacking.

Read the manual before installing and operating the instruments.

Confirm the wiring connections with the wiring diagram before switching on the power to avoid damages and injuries.

Safety precaution

1. The instrument must be operated by trained professional and technical personnel.
2. Avoid installing in a high humidity, high temperature, corrosive and in direct with sunlight environment.
3. Separate instrument signal cables from power lines and machine that produces high noise interference.

Instrument application

Widely used in effluent treatment, pure water, boiler water, surface water, electroplating, chemical industry, pharmacy, food production process, environmental monitoring, brewery, fermentation etc.

Product content

1. 6000 series

1 meter, 1 operational manual, 1 quality check form, and four sets of mounting kits (Fixed box, fixed bar and screw).

2. 800 series

1 meter, 1 operational manual, 1 quality check form, and two sets of mounting kits

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Specifications

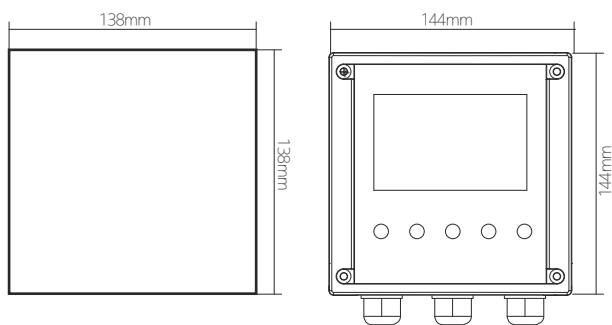
Functions	EC	Resistivity	Salinity	TDS
Measuring range	0.00uS-2000 mS	0.00-20.00 MΩ-CM	0.00-78.00 g/Kg	0-133000 ppm
Resolution	0.01/0.1/1	0.01	0.01	1
Accuracy	±1%F.S.	±1%F.S.	±1%F.S.	±1%F.S.
Temp. compensation	Pt 1000/NTC30K			
Temp. range	-10.0 to +130.0°C			
Temp. compensation range	-10.0 to +130.0°C			
Temp. resolution	0.1°C			
Temp. accuracy	±0.2°C			
Cell constant	0.001 to 20.000			
Ambient temperature range	0 to +70°C			
Storage temp.	-20 to +70°C			
Display	Back light, dot matrix			
EC current output1	Isolated, 4 to 20mA output , max. load 500Ω			
Temp. current output 2	Isolated, 4 to 20mA output , max. load 500Ω			
Current output accuracy	±0.05 mA			
RS485	Modbus RTU protocol			
Baud rate	9600/19200/38400			
MAX. relay contacts capacity	5A/250VAC , 5A/30VDC			
Cleaning setting	ON: 1 to 1000 seconds, OFF: 0.1 to 1000.0 hours			
One multi-function relay	clean/period alarm/error alarm			
Relay delay	0-120 seconds			
Data logging capacity	500,000 data			
Language selection	English/ traditional Chinese/ simplified Chinese			
USB port(for 6000 series only)	Download records and update program			
IP Rating	IP65			
Power supply	From 90 to 260VAC, power consumption<5watts			
Installation	panel/wall/pipe installation			
Weight	6000 series:0.85Kg / 800 series:0.55Kg			

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Instrument installation

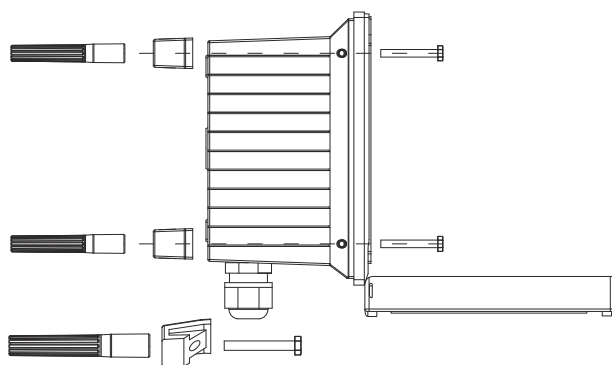
6000series : The instrument can be panel, wall or pipe mounted installation.

Panel Installation: Make a 138x138 mm square cutout and insert the instrument. Screw in the fixed block with the screws and fixed bar.



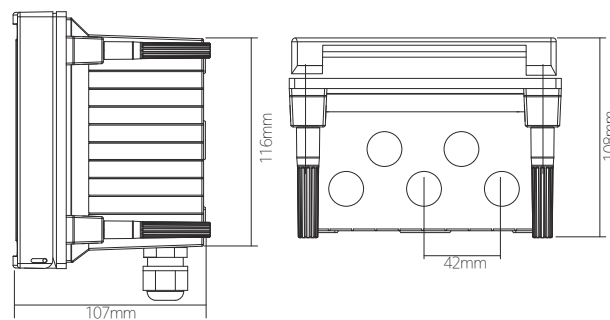
Cutout size - 6000 series

Front view - 6000 Series

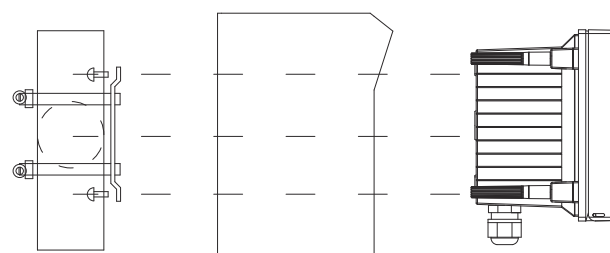


Exploded view - 6000 Series

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Side and bottom view - 6000 Series

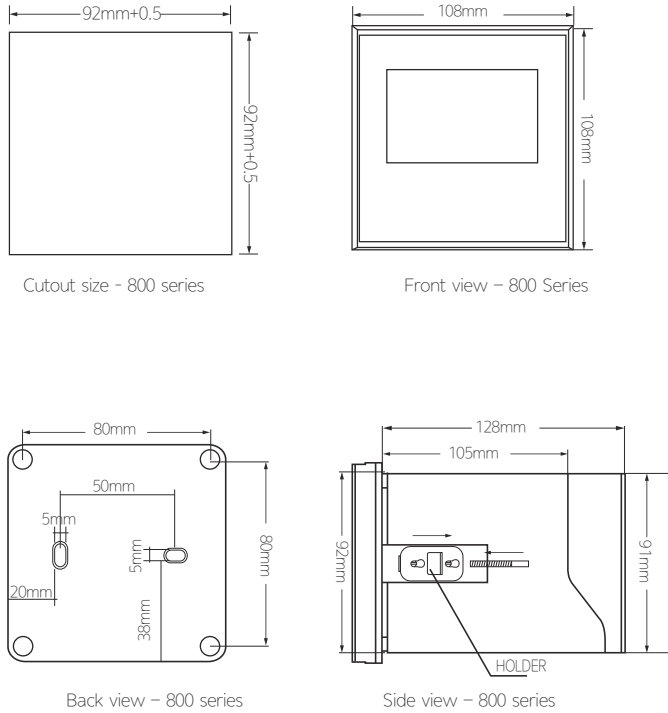


Wall and pipe installation - 6000 Series

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Instrument installation

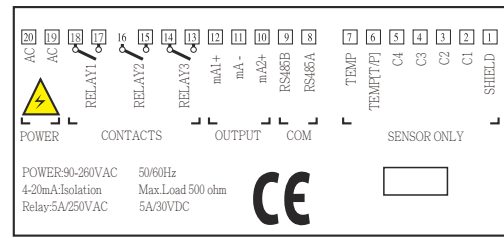
800 Series: The instrument can be panel, wall or pipe mounted installation.
To install 800 series on panel, make a 92x92 mm square cutout and insert the instrument then screw in the fixed HOLDER.



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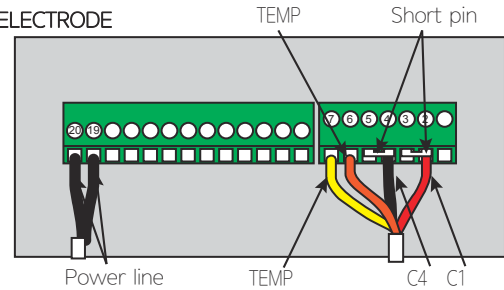
Connection label

6000 Series

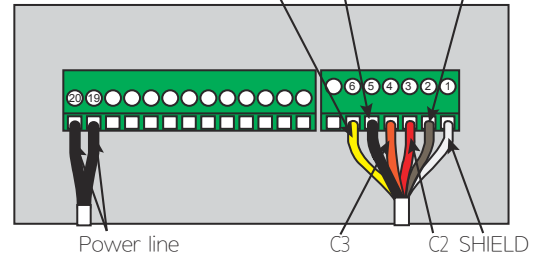


Electrode connection figure

2-ELECTRODE

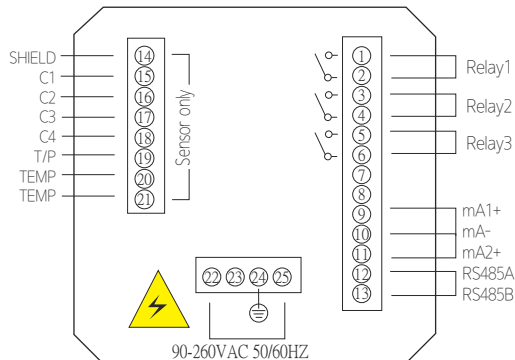


4-ELECTRODE

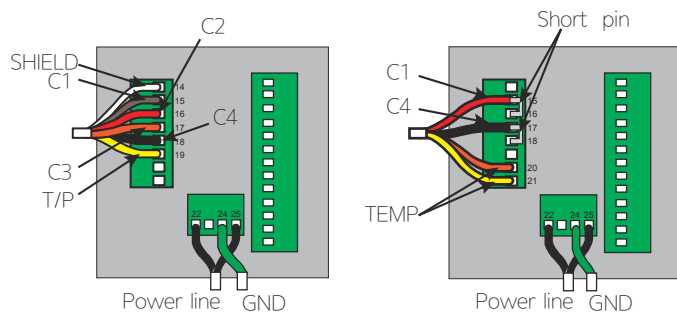


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Connection label (800 series)



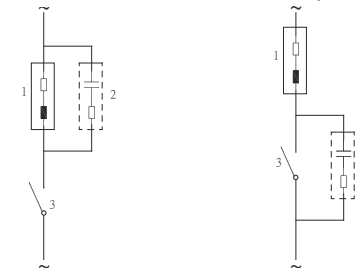
Electrode connection figure (800 series)



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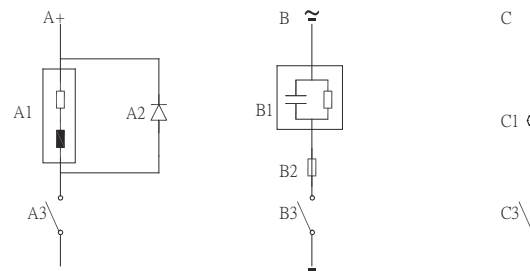
Relay contact protection

Electrical spark at the relay contact may affect the life of the relay, especially in an inductive and capacitive load. In order to inhibit the spark and arc, user should use an RC circuit to extend the life of the relay.



AC protection, use for inductive load

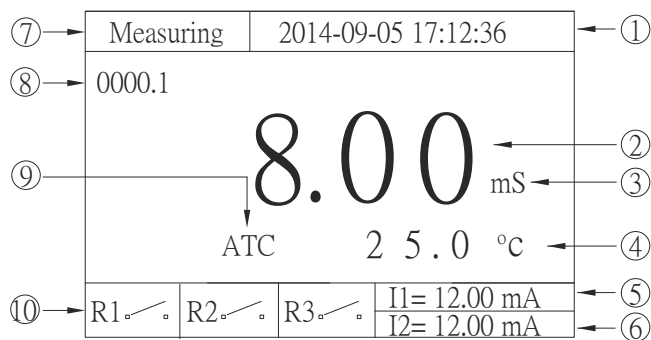
1. Load
2. RC eliminate spark, using in 220VAC, R=100 ohm 1W,
3. Relay contact



DC protection: A1 - Inductive load || A2 - 1N4007 || A3 - Relay contact
AC/DC protection: B1 - Capacitive load || B2: 0.8 Ohm/1W (DC24V) || B3 - Relay contact
Resistive load: C1 - Lamp bulb || C3 - Relay contact

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Measurement display



1. Date and time
2. Main measurement display
3. Unit
4. Temperature and unit
5. Current output 1
6. Current output 2
7. Measurement status and error indicator (Does not show when meter is in keeping mode)
8. Count down timer - Cycle time/ clean time (Displays "delay" when relay3 has delay function enabled)
9. Temperature compensation (ATC - Automatic or MTC - Manual)
10. Relay status indicator

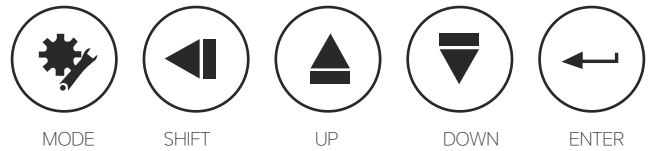
Note:

If the EC readings are over the range, it will display 99.99/999.9/9999

If the temperature readings are under or over the range, it will display -99.9/999.9.

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Buttons



Key name	Meas. status	Setting status	Cal. status	Record status
MODE	Enter password	Exit	Exit	Exit
SHIFT	none	Move digit	Mode digit	Mode digit
UP	Enter record	Inc	Inc	Inc
DOWN	None	Dec	Dec	Dec
ENTER	ON/OFFback light	Enter	Enter	Enter

Keeping mode

1. Activates during startups, setting, calibration, record, and cleaning.
2. Relay will return to default status - All relays will not be energized (Inactive).
3. Current output:
 - a) Fixed current - Values set on output test
 - b) Last current - Hold the last output before entering Keeping mode.
4. Keeping mode will be deactivated 10 seconds after returning to measurement mode.

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Setting

Press MODE key to enter the password menu and then press UP/DOWN/SHIFT key to input password 1200 then press ENTER will enter to setting mode or press MODE key to exit. Controller will return to measurement mode after 10 minutes of inactivity.

PASSWORD	PASSWORD
0 0 0 0	1 2 0 0

Main display

Press UP/DOWN key to choose functions, press ENTER key enter the function.

CONF I G U R A T I O N	CONF I G U R A T I O N
■ Current1 Settings □ Current2 Settings □ Relay1 Settings □ Relay2 Settings □ Relay3 Settings □ Measurement Settings □ Temperature Settings □ RS485 Settings	■ Date Settings □ Data Log Settings □ Output Test □ Language Settings □ Back Light Settings □ Reset Parameters

Page1

Page2

Note:

1. Error on measurement page indicates that input data is not in the correct range.
2. Press ENTER on setting pages to save any changed data.
3. Press MODE to return to the previous page.
4. Meter will return to measurement mode after 10 minutes of inactivity.

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Current 1 settings

CURRENT 1 SETTINGS	
4.00 mA	= 0 0 0 0 uS
20.00 mA	= 1 0 0 0 uS
Offset	= + 0 . 0 0 mA
Filter Time	= 0 0 0 SEC
HOLD Type	= ☐ Fixed
	0 4 . 0 0 mA
	☐ Last

1. Set the temperature value to the corresponding 4.00mA and 20.00mA point.
2. The minimum range between 4.00mA and 20.00mA at least is 100.
3. Set the offset current of temperature (The maximum range is ±1.00mA).
4. The filter time range is 0-120 seconds. The low pass filter of software will be activated when the current from one point to another point if user sets the filter time.
5. Set the current 1 output mode (Fixed / Last) during keeping mode.

Current 2 settings

CURRENT 2 SETTSINGS	
4.00 mA	= + 0 0 0 . 0 °C
20.00 mA	= + 1 0 0 . 0 °C
Offset	= + 0 . 0 0 mA
Filter Time	= 0 0 0 SEC
HOLD Type	= ☐ Fixed
	0 4 . 0 0 mA
	☐ Last

1. Set the temperature value to the corresponding 4.00mA and 20.00mA point.
2. The minimum range between 4.00mA and 20.00 mA is 10.0°C.
3. Set the offset current of temperature (The maximum range is ±1.00mA).
4. The filter time range is 0-120 seconds. The low pass filter of software will be activated when the current from one point to another point if user sets the filter time.
5. Set the current 2 output mode (Fixed / Last) during keeping mode.

Relay 1 settings

RELAY 1 SETTINGS	
ON/OFF	= ☒ ON
	= ☐ OFF
Close S.P.	= 1 0 0 0 uS
Open S.P.	= 0 4 0 0 uS
Delay Time	= 0 0 0 SEC

Ex: User targets to switch on the pump at EC 1000uS and switch off at EC 400uS. Set close S.P. to 1000uS and open S.P. to 400uS.

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Relay 2 settings

RELAY 2 SETTINGS	
ON/OFF	= ☒ ON = ☐ OFF
Close S.P.	= 0 4 0 0 uS
Open S.P.	= 1 0 0 0 uS
Delay Time	= 0 0 0 SEC

1. Press UP/DOWN key to ON/OFF (enable /disable) relay2.
2. Close set point: Target value to activate relay.
3. Open set point: Target value to deactivate relay.
4. Delay time: Relay will only be activated when this timer time out. Timer range from 0 to 120 seconds.

Ex: User targets to switch on the pump at EC 400uS and switch off at EC 1000uS. Set close S.P. to EC 400uS and open S.P. to EC 1000uS.

Relay 3 settings

RELAY 3 SETTINGS	
ON/OFF	= ☒ ON = ☐ OFF
Period Time	= 0 0 0 1 . 0 HOUR
Clean Time	= 0 0 1 0 SEC
Delay Time	= 0 0 0 SEC
Function	= ☐ Rinsing ☐ Interval Alarm ☐ Error Alarm

1. ON/OFF : Press UP/DOWN key to ON/OFF(enable/disable) relay 3.
2. Period time : Rinsing or interval function only.
3. Clean time : Relay operation period.
4. Delay time : Relay will only be activated when this timer time out.
5. Function : Press UP/DOWN key to select Rinsing/Interval/Error.

Notice:

1. Rinsing: Relay will be activated when period time out. Relay will remain activated throughout cleaning time. Period time will restart when cleaning is completed.
2. Interval alarm: Relay will be activated when period time out. Relay will remain activated until user resets the alarm. Period time will restart.
3. Error alarm: Relay will be activated when an error is detected. Timer is not available for this function.

Measurement settings

MEASUREMENT SETTINGS	
Mode	= ☒ Conductivity ☐ MΩ-CM ☐ Salinity ☐ TDS

MEASUREMENT SETTINGS	
Range	= ☒ 20.000 uS ☐ 20.00 uS ☐ 200.0 uS ☐ 2000 uS ☐ 20.00 mS ☐ 20.00 mS ☐ 2000 mS
Offset	= + 0 0 0 uS

1. Mode: select the display mode.
2. Range: select the measuring range.
3. Offset: offset for the readings.
4. Filter: average the readings.

MEASUREMENT SETTINGS	
Filter	= 0 1

Temperature setting (Page 1)

TEMPERATURE SETTINGS	
Automatic	= ☒ Auto ☐ Manual
Probe	= ☐ Pt 1000 ☐ NTC 30K
Offset	= + 0 . 0 °C
Manual Meas.	= + 0 2 5 . 0 °C
Manual Cal.	= 2 5 . 0 °C

1. Automatic: Select ATC for automatic or MTC for manual temperature compensation.
2. Probe: Select temperature probe type.
3. Offset: Offset for the temperature reading.
4. Manual meas.: The temperature value set for measurement during MTC.
5. Manual calibration: The temperature value set for calibration during MTC.

Temperature setting(Page 2)

TEMPERATURE SETTINGS	
Display	= ☒ YES ☐ NO

1. Display: Preference to display (YES) or hide temperature reading (NO).

RS485 settings

RS485 SETTINGS	
ID Address	= 0 0 1
Baud Rate	= ☐ 9600 ☐ 19200 ☐ 34800

1. ID Address: 1-255
2. Baud Rate: Press UP/DOWN key to select preferred baud rate.

Date settings

DATE SETTINGS	
Year	= 2 0 1 5
Month	= 0 8
Day	= 1 5
Hour	= 1 3
Minute	= 3 6
Second	= 0 4

Press UP/DOWN key to set the date. Clock will continue to run for about 1 week after power down.

Data log settings

DATA LOG SETTINGS	
OFF/ON	= ☒ ON ☐ OFF
Display Type	= ☐ Record ☐ XY Chart
Reset Record	= ☐ Yes ☐ No
Save Period	= 0 6 0 SEC

1. ON/OFF: Enable or disable data logging function.
2. Display Type: Select data logging display mode.
3. Reset Record: Erase all recorded data.
4. Saving Period: Recording interval.

Notice: Reset record will take around 10 seconds.

Output test

OUTPUT TEST	
Current1	= 0 4 . 0 0 mA
Current2	= 0 4 . 0 0 mA
Relay1	= ☐ CLOSE ☐ OPEN
Relay2	= ☐ CLOSE ☐ OPEN
Relay3	= ☐ CLOSE ☐ OPEN

1. Current 1: Injects current ranging from 4.00-20.00mA to the output. Press UP/DOWN to set.
2. Current 2: Injects current ranging from 4.00-20.00mA to the output. Press UP/DOWN to set.
3. Relay 1: Open or close contact. Press UP/DOWN to select.
4. Relay 2: Open or close contact. Press UP/DOWN to select.

5. Relay 3: Open or close contact. Press UP/DOWN to select.

Notice: This function for testing the output only.

Language settings

LANGUAGE SETTINGS	
Language	= ☒ English ☐ 繁體中文 ☐ 简体中文

Language preference. Press UP/DOWN key to select the language.

Back light settings

BACK LIGHT SETTING	
Back Light	= ☒ 60 Seconds = ☐ Manual

60 seconds : The back light will turn off when no key is be pressed in 60 seconds.
Manual: User needs to press the ENTER key to turn on/off the back light in measuring mode

Reset parameters

RESET PARAMETERS	
Reset Type	= ☒ Current = ☐ Relay1 = ☐ Relay2 = ☐ Relay3 = ☐ All

Reset: all parameters. Press UP/DOWN key to select the targeted preference to reset.

Notice: The reset will not affect the calibrated parameters.

Record query

Press UP key at the measurement mode to enter record query mode.

INPUT RECORD START NUMBER
0 1 0 3 0

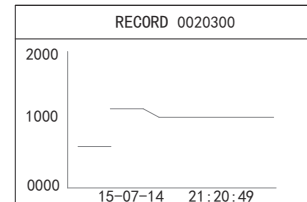
Press UP/DOWN and SHIFT key to input record number then press ENTER key to confirm record number or press MODE key to exit.

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Display (uS) data in detail view

RECORD 0020300		
15-08-14	0200	uS
21:20:49	025.0	°C
15-08-14	0201	uS
21:20:59	025.0	°C
15-08-14	0201	uS
21:21:09	025.0	°C
15-08-14	0201	uS
21:21:19	025.0	°C
15-08-14	0201	uS
21:21:29	025.0	°C

Display (uS) data in XY chart view



Calibration

Press MODE key to enter the password menu. Then, press UP/DOWN/SHIFT key to input password 1100. Pressing ENTER will proceed to calibration mode or press MODE to exit. If no key is pressed for over 10 minute, then it will go back to measurement mode.

PASSWORD
0 0 0

PASSWORD
1 1 0

Main display

CALIBRATION
☒ Parameters Settings ☐ Calibration ☐ Reset Parameters

Press UP/DOWN key to select the functions and then press ENTER key to confirm.

1. Parameters settings: Set the parameters
2. Calibration: Calibrate the concentration
3. Reset parameters: Clears all the calibrated parameters to the default setting

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Parameters settings

PARAMETERS SETTINGS	
Temp. Coef.	= 0 2 . 0 0 %
Ref. Temp.	= 2 5 . 0 °C

1. Temperature Coefficient of solution: the range is form 0.01 to 40.00%
2. Reference Temperature: the range is from 15.0 to 35.0 °C

Calibration

CALIBRATION	
Last Cell	= 0 1 . 0 0 0 0
EC Reading	= 1 0 4 3 uS
Temperature	= + 0 2 5 . 0 °C
Input Cell	= 0 1 . 2 0 0 0
Input Cell Constant	

1. Put the electrode to the standard solution.
2. It will display the EC reading.
3. When the EC reading is stable then press UP/DOWN key to modify the cell constant to make the EC reading correspond to the standard solution.
4. If the EC Reading is over the EC range or the temperature is over 0.0-60.0°C then it will display error message on the button of LCD.

Reset parameters

RESET PARAMETERS
Reset

This will reset all of the calibrated parameters to default.

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USB function

Press MODE key to enter the password menu. Press UP/DOWN/SHIFT key to input password (1300). Press ENTER will proceed to USB setting or press MODE key to exit. If no key is be pressed for over 10 minutes, it will go back to measurement mode.

PASSWORD
0 0 0

PASSWORD
1 3 0

USB setting menu

Press UP/DOWN key to select the functions and then press ENTER key to proceed.

USB SETTINGS
☒ Download records ☐ Update program

1. To download records, plug in a USB flash disk into the USB port and then download all of the records. It takes around 10 minutes to download 500,000 records or 1 minute to download 50,000 records.
2. To update program, save the correct file to the USB flash disk. Plug it to the USB port. Enter the update program function to update it.

Default settings

EC 20.00mA corresponding	1000	uS	range: 100 - 2000
EC 4.00mA corresponding	0	uS	range: 0 - 1900
			difference : 100
RES 20.00mA corresponding	10.00	MQ	range: 1.00 - 20.00
RES 4.00mA corresponding	0.00	MQ	range: 0.00 - 19.00
			difference : 1.00
SAL 20.00mA corresponding	10.00	g/Kg	range: 1.00 - 78.00

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SAL 4.00mA corresponding	0.00	g/Kg	range: 0.00 - 77.00 difference : 1.00
TDS 20.00mA corresponding	1000	ppm	range: 100 - 133000
TDS 4.00mA corresponding	0	ppm	range: 0 - 132900 difference : 100
Temp. 20.00mA corresponding	100.0	°C	range: 0.0 - 130
Temp. 4.00mA corresponding	0.0	°C	range: -10.0 - 120.0 difference : 10.0
Current 1 output offset	0.00	mA	range: +/- 1.00
Current 2 output offset	0.00	mA	range: +/- 1.00
Current 1 filter	0	second	range: 0 - 120 second
Current 2 filter	0	second	range: 0 - 120 second
Current 1 fixed output	4.00	mA	range: 4.00 - 20.00
Current 2 fixed output	4.00	mA	range: 4.00 - 20.00
Current 1 HOLD type	last		range: fixed/last
Current 2 HOLD type	last		range: fixed/last
Relay 1 EC close S.P.	1000	uS	range: 0 - 2000
Relay 1 EC open S.P.	10	uS	range: 0 - 2000 difference : 1
Relay 1 RES close S.P.	10.00	MQ	range: 0.00 - 20.00
Relay 1 RES open S.P.	0.1	MQ	range: 0.00 - 20.00 difference : 0.01
Relay 1 SAL close S.P.	10.00	g/Kg	range: 0.00 - 78.00
Relay 1 SAL open S.P.	0.1	g/Kg	range: 0.00 - 78.00 difference : 0.01
Relay 1 TDS close S.P.	1000	ppm	range: 0 - 133000
Relay 1 TDS open S.P.	10	ppm	range: 0 - 133000 difference : 1
Relay 1 delay time	0	second	range: 0 - 120
Relay 2 EC close S.P.	1000	uS	range: 0 - 2000
Relay 2 EC open S.P.	10	uS	range: 0 - 2000 difference :1
Relay 2 RES close S.P.	10.00	MQ	range: 0.00 - 20.00
Relay 2 RES open S.P.	0.1	MQ	range: 0.00 - 20.00 difference :0.01
Relay 2 SAL close S.P.	10.00	g/Kg	range: 0.00 - 78.00
Relay 2 SAL open S.P.	0.1	g/Kg	range: 0.00 - 78.00 difference :0.01

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Relay 2 TDS close S.P.	1000	ppm	range: 0 - 133000
Relay 2 TDS open S.P.	10	ppm	range: 0 - 133000 difference :1
Relay 2 delay time	0	second	range: 0 - 120
Relay 3 period time	1.0	hour	range: 0 - 1000.0
Relay 3 clean time	10	second	range: 0 - 1000
Relay 3 delay time	0		range: 0 - 120
Relay 3 function	error alarm		range: clean/period alarm/ error alarm
Saving period	60	second	range: 5 - 120
ID address	1		range: 1 - 255
Baud rate	9600		range: 9600,19200,38400
EC Offset	0	uS	range: +/-100
Resistivity Offset	0.00	MQ	range: +/-1.00
Salinity Offset	0.00	g/Kg	range: +/-1.00
TDS Offset	0	ppm	range: +/-100
Mode	EC		range: EC,RES,SAL,TDS
Measuring range	0-2000uS		range:0-20.00uS/0-200.0uS 0-2000uS/0-20.00mS 0-200.0mS/0-2000mS
Temp. Offset	0.0	°C	range: +/- 5.0
Manual Temp. for measurement	25.0	°C	range: -10.0 - 130.0
Manual Temp. for calibration	25.0	°C	range: 0.0 - 60.0
Language	English		range: English/traditional Chinese/simple Chinese
Filter	1		range: 0 - 10
Temp. compensation	ATC		range: ATC/MTC
Temp. probe	NTC30K		range: Pt1000, NTC30K
Record type	record		range: record/XY chart

Password

Press MODE key
1100: Calibration mode
1200: Setting mode
1300: USB mode

*If no key is be pressed within 10 minutes, it will return to measurement mode.

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Error code

Error 01	Memory error
Error 02	Reading is over maximum
Error 03	Reading is under minimum
Error 04	Temperature is over maximum
Error 05	Temperature is under minimum
Error 06	Current 1 output is over 20.5 mA. The maximum is 22.00mA
Error 07	Current 1 output is under 3.8 mA. The minimum is 3.5mA
Error 08	Current 2 output is over 20.5 mA. The maximum is 22.00mA
Error 09	Current 2 output is under 3.8 mA. The minimum is 3.5mA
Error 10	Record error
Error 11	ADC damage
Error 99	Default parameters lost

RS485 command

The instrument come in standard with Modbus-RTU protocol. All of the data are word type (2 bytes), the range is -32767 ~ 32767 ,16 system.

PC command

	ID address	command	Start address	Data number	CRC16
length	1 byte	1byte	2 byte	2 byte	2 byte
Ex.	0x01	0x03	0x0001	0x0001	0xD5CA

Instrument response

	ID address	command	Data number	data	CRC16
length	1 byte	1 byte	1byte	N byte	2 byte
Ex.	0x01	0x03	0x02	0x02 0xBC	0xB895

If response is 01, the command is wrong.
If response is 02, the address is not correct.
If response is 03, data number is not correct.

command 03: read the settings
command 04: read the readings

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04:definition address	
(00) 0x00	EC/RES/SAL/TDS reading1 reading: floating, the unit is uS
(02) 0x02	EC/RES/SAL/TDS current reading:X 0.01
(03) 0x03	Temperature reading:X 0.1
(04) 0x04	Temperature current reading:X 0.01
(05) 0x05	Error code reading:X 1
(06) 0x06	
(07) 0x07	
(08) 0x08	
(09) 0x09	Model type Fixed to 3

03:definition

Address	
(00) 0x00	EC 20.00mA corresponding reading:X0.01/0.1/1
(01) 0x01	EC 4.00mA corresponding reading:X0.01/0.1/1
(02) 0x02	RES 20.00mA corresponding reading:X0.01
(03) 0x03	RES 4.00mA corresponding reading:X0.01
(04) 0x04	SAL 20.00mA corresponding reading:X0.01
(05) 0x05	SAL 4.00mA corresponding reading:X0.01
(06) 0x06	TDS1 20.00mA corresponding reading:X1
(07) 0x07	TDS2 20.00mA corresponding reading:X1
(08) 0x08	TDS1 4.00mA corresponding reading:X1
(09) 0x09	TDS2 4.00mA corresponding reading:X1
(10) 0x0A	Temp. 20.00mA corresponding reading:X 0.1
(11) 0x0B	Temp. 4.00mA corresponding reading:X 0.1
(12) 0x0C	Current 1 offset reading:X0.01
(13) 0x0D	Current 2 offset reading:X0.01
(14) 0x0E	Current 1 filter reading:X1
(15) 0x0F	Current 2 filter reading:X1
(16) 0x10	Current 1 fixed current reading:X0.01
(17) 0x11	Current 2 fixed current reading:X0.01
(18) 0x12	Current 1 HOLD type reading:X1 0=fixed,1=last
(19) 0x13	Current 2 HOLD type reading:X1 0=fixed,1=last
(20) 0x14	Relay 1 EC close S.P. reading:X0.01/0.1/1
(21) 0x15	Relay 1 EC open S.P. reading:X0.01/0.1/1
(22) 0x16	Relay 1 RES close S.P. reading:X0.01

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(23)	0x17	Relay 1 RES open S.P.	reading:X0.01
(24)	0x18	Relay 1 SAL close S.P.	reading:X0.01
(25)	0x19	Relay 1 SAL open S.P.	reading:X0.01
(26)	0x1A	Relay 1 TDS1 close S.P.	reading:X1
(27)	0x1B	Relay 1 TDS2 close S.P.	reading:X1
(28)	0x1C	Relay 1 TDS1 open S.P.	reading:X1
(29)	0x1D	Relay 1 TDS2 open S.P.	reading:X1
(30)	0x1E	Relay 1 delay time	reading:X1
(31)	0x1F	Relay 2 EC close S.P.	reading:X0.01/0.1/1
(32)	0x20	Relay 2 EC open S.P.	reading:X0.01/0.1/1
(33)	0x21	Relay 2 RES close S.P.	reading:X0.01
(34)	0x22	Relay 2 RES open S.P.	reading:X0.01
(35)	0x23	Relay 2 SAL close S.P.	reading:X0.01
(36)	0x24	Relay 2 SAL open S.P.	reading:X0.01
(37)	0x25	Relay 2 TDS1 close S.P.	reading:X1
(38)	0x26	Relay 2 TDS2 close S.P.	reading:X1
(39)	0x27	Relay 2 TDS1 open S.P.	reading:X1
(40)	0x28	Relay 2 TDS2 open S.P.	reading:X1
(41)	0x29	Relay 2 delay time	reading:X1
(42)	0x2A	Relay 3 clean period	reading:X0.1
(43)	0x2B	Relay 3 clean time	reading:X1
(44)	0x2C	Relay 3 delay time	reading:X1
(45)	0x2D	Relay 3 function	reading:X1 0:clean,1:period alarm ,2:Error alarm
(46)	0x2E	Record saving time	reading:X1
(47)	0x2F	EC Offset	reading:X0.01/0.1/1
(48)	0x30	Resistivity Offset	reading:X0.01
(49)	0x31	Salinity Offset	reading:X0.01
(50)	0x32	TDS Offset	reading:X1
(51)	0x33	Temp. offset	reading:X0.1
(52)	0x34	Language	reading:X1 0=English ,1=traditional Chinese,2=simple Chinese
(53)	0x35	Filter	reading:X1
(54)	0x36	Temperature coefficient	reading:X0.01 0.01%-40.00%
(55)	0x37	Reference temperature	reading:X0.1 15.0-35.0°C
(56)	0x38	Mode	reading: 0=EC,1=RES,2=SAL,3=TDS
(57)	0x39	Temp. probe	reading: 0=Pt1000,1=NTC 30K