Digital Salinity Meter Instruction Manual

SHINWA Work Together

Item Code 72799

Thank you for purchasing the Shinwa Digital Salinity Meter. Before using the product, please read the instructions contained in this manual to ensure correct use. After having read this manual, always keep it with you or in a safe place.
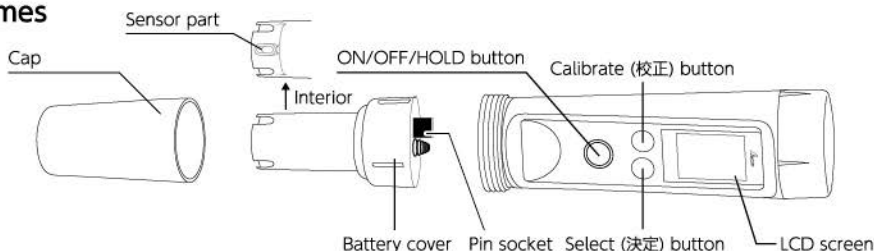
■Use
- ●For management of fish farming and drinking water
- ●Measure salinity of liquids

■Features
- ●Compact size convenient for carrying
- ●Waterproof construction (IPX5 rating)
- ●Auto Power Off function that automatically turns off the device when approximately 8 minutes pass without operation.
- ●Hold function
- ●Automatic Temperature Compensation (ATC) function
- ●Electric conductivity measurement function
- ●Liquid temperature measurement function
- ●With carry case

■Part Names

Sensor part
Cap
Interior
ON/OFF/HOLD button
Calibrate (校正) button
Battery cover   Pin socket   Select (決定) button   LCD screen

■Specifications

|		
Measuring Range	Salinity: 0 - 8.0%	
	Electric Conductivity: 0 - 200 mS/cm*1	
	Temperature: 0 - 60℃	
Accuracy*2	Salinity: ±0.2%	
	Electric Conductivity	0 - 1999 μS/cm*1: ±20μS/cm 2 - 200 mS/cm: ±2 mS/cm
	Temperature: ±1℃	
Automatic Temperature Compensation (ATC)	Available	
Resolution	Salinity: 0.1%	
	Electric Conductivity: 1 μS/cm	
	Temperature: 0.1℃	
Waterproof	IPX5 rating	
Power Source	2x AAA Alkaline batteries (Batteries included are for trial use only and may not last as long)	
Auto Power Off	Approx. 8 minutes	
Material	Body: ABS resin Sensor Part: Glass	
Body Size	φ40 × 185 mm	
Weight	114 g (including batteries)	

*1 If the standard measurement value exceeds 1999 μS/cm, it will automatically switch to mS/cm.
*2 After calibration with the reference solution, it will show the reproducibility when measured with the same reference solution.
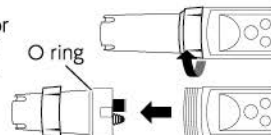
■Changing the Batteries

When the battery power is running low, the battery icon will be displayed in the upper left-hand corner of the LCD screen.
We recommend replacing the batteries soon after the icon is displayed.
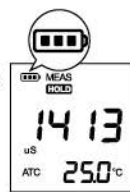
1. Remove the cap, and loosen the battery cover by turning in a counter-clockwise direction, gently pull out and remove the sensor part, and remove the old batteries.

O ring

2. Prepare 2 new AAA batteries, and insert into the device, making sure the + and – orientation is correct.

Pin header

3. Replace the battery cover by following the reverse order.
   *Close the battery cover securely. Check to make sure that the pin socket and pin header are inserted correctly and that the O ring has not come loose.

■Before Using

Please use only after referring to the section ■Changing the Batteries and installing batteries.

■Calibration

The device has been calibrated before shipment, but follow the steps below to calibrate again when using.

1-point, 2-point, and 3-point calibrations are possible.
Sufficient measurement is possible with just 1-point calibration, but when measuring with a higher accuracy, please use 2-point or 3-point calibration.

The 1-point calibration can be calibrated with 1413 μS/cm calibration solution.
The 2-point calibration can be calibrated with 1413 μS/cm, 12.88 mS/cm and calibration solution.
The 3-point calibration can be calibrated with 1413 μS/cm, 12.88 mS/cm and 111.8 mS/cm calibration solution.
 *This device does not come with calibration solution. Please use our standard solution Conductivity Solution (Item Code 73035) or a commercially-available calibration solution.
  Our standard solution is 1413 μS/cm only.

1. Press the ON/OFF/HOLD button and turn on the device.
2. Rinse the sensor part with tap water, and rinse with the calibration solution that will be used for calibration after this.
3. Press the Calibrate (校正) button, and the Start Screen shown in the diagram below will be displayed.
4. Immerse the sensor part in calibration solution and a 4-digit will be displayed.
5. Press the Select (決定) button and the value for the digit to the far left will light up.
6. Adjust the number to the numerical value of the calibration solution with the Calibrate (校正) button and push the Select (決定) button. This will cause the next digit to the right to blink so continue on and when the last digit is set, press the Select (決定) button.
   Then wait while it detects the calibration solution.
7. When "END" appears the setting will be completed, "MEAS" will automatically be displayed, and the device will return to Measurement Mode.

   ●1-point calibration   Perform steps 1 - 7 with 1413 μS/cm calibration solution.

   ●2-point calibration   Perform steps 1 - 6 with 1413 μS/cm calibration solution. → "CAL2" will be displayed. → Perform steps 2 - 7 with 12.88 mS/cm calibration solution.

   ●3-point calibration   Perform steps 1 - 6 with 1413 μS/cm calibration solution. → "CAL2" will be displayed. → Perform steps 2 - 6 with 12.88 mS/cm calibration solution. → "CAL3" will be displayed. → Perform steps 2 - 7 with 111.8 mS/cm calibration solution.

   *Please refer to ■Setup for settings of 1-point, 2-point, and 3-point calibration.
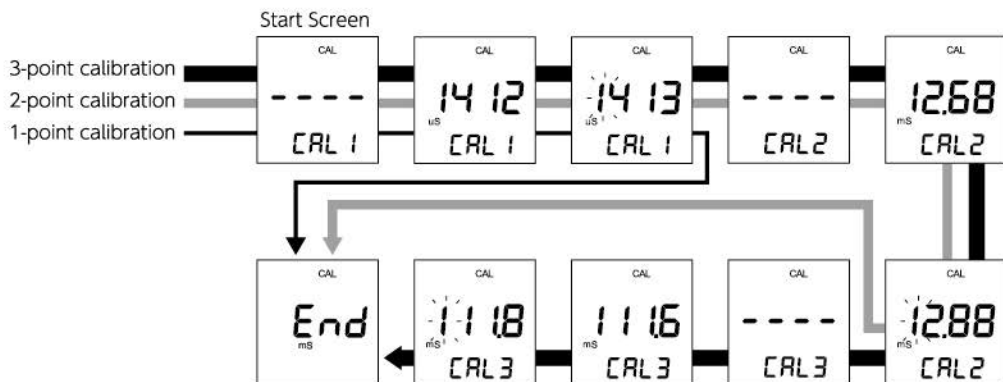
■How to Use

When using for the first time or after some time has passed, turn the device on after first immersing the sensor part in tap water for approximately 30 minutes, and use only after calibrating. Please see the section ■Calibration for details about the calibration method.
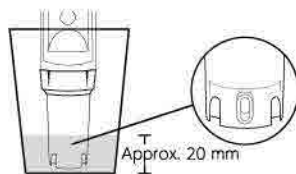
Depth at which the sensor part is completely submerged

Approx. 20 mm

Immerse to about 20 mm from the tip

●Salinity Measurement Mode

1. Press the ON/OFF/HOLD button to turn on the power and check that "MEAS" and "%" are displayed ("MEAS" is displayed in Measurement Mode).
   If "μS" is displayed, press the Select (決定) button to change "μS" to "%".
2. Immerse the sensor part in the liquid to be measured and read the numerical value.
   When you want to fix the numerical value, pressing the ON/OFF/HOLD button will display [**HOLD**] and fix the measured value (hold function).
   When you press the ON/OFF/HOLD button again, [**HOLD**] disappears and the fixation will be canceled.
3. Press and hold the ON/OFF/HOLD button to turn off the device.
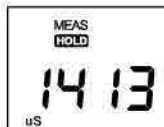
MEAS
HOLD
1413
uS

●EC Measurement Mode

1. Press the ON/OFF/HOLD button to turn on the power, press the Select (決定) button and confirm that "MEAS" and "μS" are displayed ("MEAS" is displayed in Measurement Mode).
   In the case of %, press the Select button to change % to μS.
2. Immerse the sensor part in the liquid to be measured and read the numerical value.*
   When you want to fix the numerical value, pressing the ON/OFF/HOLD button will display [**HOLD**] and fix the measured value (hold function).
   When you press the ON/OFF/HOLD button again, [**HOLD**] disappears and the fixation is canceled.
3. To turn off the device, press and hold the ON/OFF/HOLD button.
   *If the sensor part is not immersed in liquid, a numerical value of 1μS/cm or less may be displayed, but this is not a malfunction.

■Liquid Temperature Measurement Function

This device can measure the temperature of a liquid from 0 - 60℃.
If the temperature displayed is different from the actual measured temperature, please refer to the section ■Setup and adjust the settings.

# ■Automatic Temperature Compensation (ATC) Function

This is a function to compensate for changes in measurement values due to temperature changes in the solution temperature being measured.

■Setup

Run the setup when changing the calibration values (either 1-point, 2-point, 3-point calibration) or when calibrating the temperature.

1. When pressing and holding the Calibrate (校正) button while in Salinity Measurement Mode (% is displayed on the LCD screen) or EC Measurement Mode (μS is displayed on the LCD screen), "SET UP" and "1 CAL" (in the initial state) will be displayed.
   If 2-point or 3-point calibration has already been set, "2 CAL" or "3 CAL" will be displayed.
   Press the Calibrate (校正) button, and select either "1 CAL", "2 CAL", or "3 CAL" by pressing the Select (決定) button.

Press and hold the Calibrate (校正) button

1
SETUP
1
CAL

2. Next, "C" will be displayed. If the temperature displayed and actual temperature are different, please calibrate the temperature.
   If temperature calibration is unnecessary, please press the Select (決定) button.
   For temperature calibration, press the Calibrate (校正) button, change it according to the liquid temperature of the object being measured, and press the Select(決定) button.
   Measure the actual liquid temperature with a separate thermometer.
   *It is not possible to set a temperature with less than a decimal point.

Press the Calibrate (校正) button to change the temperature

2
SETUP
℃
CAL
➡
SETUP
24.0℃
➡
SETUP
25.0℃

3. Next, "NO" will be displayed. If you are satisfied with the settings of 1 and 2, go ahead and press the Select (決定) button. If you want to redo the settings of 1 and 2, press the Calibrate (校正) button and "YES" will be displayed, then press the Select (決定) button to return to the initial state. Since "1 CAL," "25.0°C" will be displayed, please do the setup again.

Select one

3

SETUP	SETUP
∏O ⬌	YES
rSt	rSt
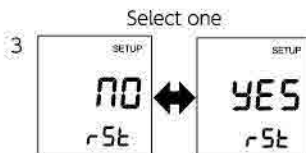
■Sensor Part Maintenance

● After use, rinse off the sensor part with tap water, replace the attached cap after drying, then place it in the carry case.
● If crystals form on the sensor part, rinse it with tap water or immerse it in calibration solution for about 1 day to remove them.
  *Be careful not to touch the sensor part.

■———— Display Causes and Remedies

	Cause	▶	Remedy
When using	Not turned on	▶	Immerse in water and turn on
	Exceeding the measurement range	▶	Use within the measurement range

■Err Display Causes and Remedies

	Cause	▶	Remedy
When calibrating	Not immersed in calibration solution	▶	Thoroughly immerse the sensor part in the calibration solution
	The selected numerical value and the calibration reference value are different	▶	Check whether the calibration reference value matches the set value
	The calibration solution cannot be accurately calibrated due to discoloration, etc.	▶	Confirm again with new calibration solution

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⚠ Caution

● Do not use other than as intended.
● Do not bump, drop or handle this device roughly.
● Since the sensor part is made of glass, be careful when handling. Do not touch it directly.
● Do not use or store in a place with high temperature.
● Take care that iron powder, dirt, dust, water, etc. does not penetrate inside the device.
● Do not take apart the device under any circumstances.
● Keep out of the reach of children.
● If the device is dirty, wipe with a cloth soaked in water or a neutral detergent. Do not use benzine or thinner, etc.
● Remove the batteries when the device will not be used for a long time.
● We shall not be liable for any consequential, incidental, or indirect damages such as losses and lost profits to the customer as well as a third party resulting from the operation of this product, regardless of whether or not they were foreseeable or the possibility was reasonably foreseeable. However, this shall not apply in the case where there is willful or gross negligence or when the customer is a consumer according to the Consumer Contract Act. In the event that we are liable for the use of this product, we shall be liable for damages limited to an amount equal to the price of the product.