HORIBA
Scientific

Instruction Manual

COND METER (DS-71G)

■ Preface

This manual describes the operation of the following instrument.

Brand (pet name):	LAQUA
Series name:	Benchtop pH/Water Quality Analyzer
Model:	DS-71G
Model description:	COND METER

Be sure to read this manual before using the product to ensure proper and safe operation of the instrument. Also safely store the manual so it is readily possible whenever necessary.

Product specifications and appearance, as well as the contents of this manual are subject to change without notice.

● Warranty and responsibility

HORIBA Advanced Techno Co., Ltd. warrants that the Product shall be free from defects in material and workmanship and agrees to repair or replace free of charge, at option of HORIBA Advanced Techno Co., Ltd., any malfunctioned or damaged Product attributable to responsibility of HORIBA Advanced Techno Co., Ltd. for a period of one (1) year from the delivery unless otherwise agreed with a written agreement. In any one of the following cases, none of the warranties set forth herein shall be extended;

- Any malfunction or damage attributable to improper operation
- Any malfunction attributable to repair or modification by any person not authorized by HORIBA Advanced Techno Co., Ltd.
- Any malfunction or damage attributable to the use in an environment not specified in this manual
- Any malfunction or damage attributable to violation of the instructions in this manual or operations in the manner not specified in this manual
- Any malfunction or damage attributable to any cause or causes beyond the reasonable control of HORIBA Advanced Techno Co., Ltd. such as natural disasters
- Any deterioration in appearance attributable to corrosion, rust, and so on
- Replacement of consumables

HORIBA Advanced Techno Co., Ltd. SHALL NOT BE LIABLE FOR ANY DAMAGES RESULTING FROM ANY MALFUNCTIONS OF THE PRODUCT, ANY ERASURE OF DATA, OR ANY OTHER USES OF THE PRODUCT.

● Trademarks

Company names and brand names are either registered trademarks or trademarks of the respective companies. (R), (TM) symbols may be omitted in this manual.

CODE:GZ0000260899G
January, 2017 **© 2017 HORIBA Advanced Techno Co., Ltd.**

■ Regulations

● EU regulations

● Conformable standards

This equipment conforms to the following standards:

CE

EMC:	EN61326-1 Class B, Basic electromagnetic environment
Safety:	EN61010-1
RoHS:	EN50581 9. Monitoring and control instruments

Warning: This product is not intended for use in industrial environments. In an industrial environment, electromagnetic environmental effects may cause the incorrect performance of the product in which case the user may be required to take adequate measures.

● Installation environment

This product is designed for the following environment.

- Overvoltage category II
- Pollution degree 2

● Information on disposal of electrical and electronic equipment and disposal of batteries and accumulators

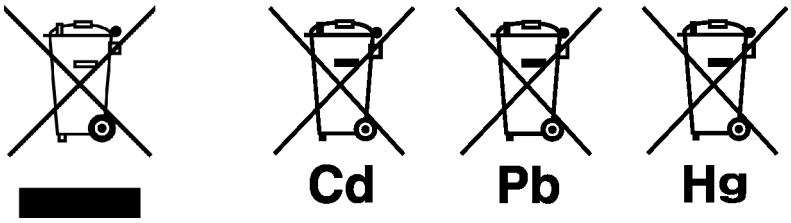
The crossed out wheeled bin symbol with underbar shown on the product or accompanying documents indicates the product requires appropriate treatment, collection and recycle for waste electrical and electronic equipment (WEEE) under the Directive 2012/19/EU, and/or waste batteries and accumulators under the Directive 2006/66/EC in the European Union.

The symbol might be put with one of the chemical symbols below. In this case, it satisfies the requirements of the Directive 2006/66/EC for the object chemical.

This product should not be disposed of as unsorted household waste.

Your correct disposal of WEEE, waste batteries and accumulators will contribute to reducing wasteful consumption of natural resources, and protecting human health and the environment from potential negative effects caused by hazardous substance in products.

Contact your supplier for information on applicable disposal methods.



- **Authorised representative in EU**

  HORIBA UK Limited
  2 Dalston Gardens, Stanmore, Middx HA7 1BQ, UK

FCC rules

Any changes or modifications not expressly approved by the party responsible for compliance shall void the user's authority to operate the equipment.

- **Warning**

  This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

  Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Korea certification

- B급 기기 (가정용 방송통신기자재)

  이 기기는 가정용(B 급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Taiwan battery recycling mark

廢電池請回收

● China regulation

标记的意义
Meaning of Marking
マークの意味

本标记适用在中华人民共和国销售电器电子产品，标记中央的数字表示环境保护使用期限的年数。(不是表示产品质量保证期间。)只要遵守这个产品有关的安全和使用注意事项，从制造日开始算起在这个年限内，不会给环境污染、人体和财产带来严重的影响。请不要随意废弃本电器电子产品。

This marking is applied to electric and electronic products sold in the People's Republic of China. The figure at the center of the marking indicates the environmental protection use period in years. (It does not indicate a product guarantee period.) It guarantees that the product will not cause environment pollution nor serious influence on human body and property within the period of the indicated years which is counted from the date of manufacture as far as the safety and usage precautions for the product are observed. Do not throw away this product without any good reason.

本マークは、中華人民共和国で販売される電気電子製品に適用され、マークの中央の数字は環境保護使用期限の年数を意味します（製品の品質保証期間を示すものではありません）。この製品に関する安全や使用上の注意をお守り頂く限り、製造日から起算するこの年限内では、環境汚染や人体や財産に深刻な影響を及ぼすことはありません。本製品をみだりに廃棄しないでください。

产品中有害物质的名称及含量

Name and amount of hazardous substance used in a product

部件名称 Unit name	有害物质 Hazardous substance					
	铅 Lead (Pb)	汞 Mer- cury (Hg)	镉 Cad- mium (Cd)	六价铬 Hexa- valent chrom- ium (Cr (VI))	多溴联苯 Poly bromo- biphenyl (PBB)	多溴二苯醚 Poly bromo- diphenyl ether (PBDE)
本体 Main unit	×	○	○	○	○	○
电池 Battery	×	○	○	○	○	○
AC适配器 AC adapter*1	×	○	○	○	○	○
电缆 Cable	×	○	○	○	○	○
支架 Stand*2	○	○	○	○	○	○
打印机 Printer*2	×	○	○	○	○	○
电极 Electrode*2	×	○	×	○	○	○

本表格依据 SJ/T 11364 的规定编制。

This form is prepared in accordance with SJ/T 11364.

○: 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

Denotes that the amount of the hazardous substance contained in all of the homogeneous materials used in the component is below the limit on the acceptable amount stipulated in the GB/T 26572.

×: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

Denotes that the amount of the hazardous substance contained in any of the homogeneous materials used in the component is above the limit on the acceptable amount stipulated in the GB/T 26572.

*1: 本部件的环保使用期限为10年。 The environmental protection use period of this product is 10 years.

*2: 选配件 Optional products

■ For Your Safety

● Hazard classification and warning symbols

Warning messages are described in the following manner. Read the messages and follow the instructions carefully.

● Hazard classification

⚠DANGER	This indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.
⚠WARNING	This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	This indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

● Warning symbols

Description of what should be done, or what should be followed

Description of what should never be done, or what is prohibited

● [DEU] Sicherheitsinformation

Lesen Sie vor der Verwendung des Produkts unbedingt diese Anleitung, um den ordnungsgemäßen und sicheren Betrieb des Produkts zu gewährleisten. Bewahren Sie die Anleitung sicher auf, damit sie bei Bedarf jederzeit zur Hand ist.

Die Inhalt dieser Anleitung können ohne Vorankündigung geändert werden.

● Installationsumgebung

Dieses Produkt ist nicht zum Gebrauch in industriellen Umgebungen, wie in EN61326-1 definiert, vorgesehen.

In einer industriellen Umgebung können die elektromagnetischen Störungen eventuell zu Produktfehlfunktionen führen. Um dieses Produkt unter solchen Umständen verwenden zu können, muss der Benutzer ggf. angemessene Maßnahmen ergreifen.

Das Produkt ist gemäß EN61010-1 für die folgende Umgebung vorgesehen.

- Überspannungskategorie II
- Verschmutzungsgrad 2

● [FRA] Informations de sécurité

Veillez à lire le présent manuel avant d'utiliser le produit de manière à garantir son utilisation correcte et sûre. De même, rangez le manuel dans un lieu sûr de manière à pouvoir vous y reporter lorsque cela est nécessaire.

Le contenu du présent manuel peut être modifié sans notification préalable.

● Environnement d'installation

Ce produit n'est pas destinés à une utilisation dans des environnements industriels, tels que définis dans la norme EN61326-1.

Dans un environnement industriel, les interférences électromagnétiques peuvent entraîner un dysfonctionnement du produit. Pour utiliser le produit dans ce type d'environnements, l'utilisateur peut avoir à prendre des mesures appropriées.

Le produit est conçu pour l'environnement suivant, tel que défini dans la norme EN61010-1.

- Catégorie de surtension II
- Degré de pollution 2

● [ITA] Informazioni sulla sicurezza

Leggere attentamente questo manuale prima di utilizzare il prodotto al fine di utilizzarlo in modo sicuro e adeguato. Inoltre, conservare in un luogo sicuro il manuale per poterlo consultare se necessario.

Le contenuti di questo manuale sono soggetti a modifiche senza preavviso.

● Ambiente di installazione

Questo prodotto non è stati progettati per essere utilizzati in ambienti industriali, secondo la norma EN61326-1.

In un ambiente industriale, le interferenze elettromagnetiche potrebbero causare un malfunzionamento del prodotto. Per utilizzare il prodotto in tali ambienti, all'utente potrebbe essere richiesto di adottare le contromisure necessarie.

Il prodotto è designato per il seguente ambiente, definito nello standard EN61010-1.

- Categoria di sovratensione II
- Livello di inquinamento 2

● [SWE] Säkerhetsinformation

Se till att du läser denna handbok innan du börjar använda produkten för en korrekt och säker användning av den. Spara sedan handboken på en säker och lättåtkomlig plats så att du kan konsultera den när så behövs.

Innehållet i denna handbok kan komma att ändras utan föregående meddelande därom.

● Installationsmiljö

Detta produkten är ej avsedda för användning i industriella miljöer enligt riktlinjerna i EN61326-1.

Om den används i industrimiljöer kan de elektromagnetiska störningarna orsaka tekniska fel hos produkten. Om produkten ska användas i sådana miljöer kan användaren behöva vidta lämpliga åtgärder för att lösa dessa problem.

Produkten är utformad för användning i följande miljöer, i enlighet med SS-EN 61010-1.

- Överspänningskategori II
- Föroreningsgrad 2

● [SPA] Información de seguridad

Asegúrese de leer este manual antes de utilizar el producto para garantizar un uso correcto y seguro del mismo. Asimismo, guarde de forma segura el manual para que esté disponible siempre que sea necesario.

El contenido de este manual están sujetos a cambios sin previo aviso.

● Entorno de instalación

Este producto está diseñado para su uso en entornos industriales, tal y como se define en EN61326-1.

En un entorno industrial, las interferencias electromagnéticas pueden provocar un funcionamiento incorrecto del producto. Para usar el producto en tales entornos, el usuario debe tomar las medidas adecuadas.

El producto se ha diseñado para el siguiente entorno, definido en EN61010-1.

- Categoría de sobretensión II
- Nivel de contaminación 2

● [POL] Informacje dotyczące bezpieczeństwa

Przed przystąpieniem do użytkowania tego produktu należy dokładnie zapoznać się z niniejszą instrukcją, aby zapewniona była prawidłowa i bezpieczna eksploatacja produktu. Instrukcję przechowywać w bezpiecznym miejscu, aby w razie potrzeby była zawsze dostępna.

Treść niniejszej instrukcji może ulec zmianie bez wcześniejszego powiadomienia.

● Środowisko instalacji

Ten produkt nie są przeznaczone do użytkowania w środowisku przemysłowym, zgodnie z definicją określoną w normie EN61326-1.

W środowisku przemysłowym zakłócenia elektromagnetyczne mogą powodować nieprawidłowe działanie produktów. Możliwe, że aby użytkować produkt w takich środowiskach, użytkownik będzie musiał podjąć stosowne środki zaradcze.

Produkt jest przeznaczony do użycia w poniższym środowisku zdefiniowanym w normie EN61010-1.

- Kategoria przepięciowa II
- Stopień zanieczyszczenia 2

● [NLD] Veiligheidsinformatie

Lees deze handleiding voordat u dit product gebruikt zodat u het op de juiste manier en veilig kunt gebruiken. Bewaar de handleiding goed zodat u hem wanneer nodig kunt raadplegen.

De inhoud van deze handleiding kunnen zonder voorafgaande kennisgeving worden gewijzigd.

● Installatieomgeving

Dit product is niet bedoeld voor gebruik in een industriële omgeving zoals gedefinieerd in EN 61326-1.

In een industriële omgeving kan de elektromagnetische interferentie de werking van dit product storen. Voor gebruik van het product in een dergelijke omgeving moet de gebruiker mogelijk maatregelen treffen om de storing te verhelpen.

Het product is ontworpen voor de volgende omgeving, gedefinieerd in EN 61010-1.

- Overspanningscategorie II
- Vervuilingsgraad 2

● [JPN] 安全情報

ご使用になる前に、本書を必ずお読みください。お読みになった後は必要なときにすぐに取り出せるように大切に保管してください。
本書に記載されている内容は予告なく変更される場合があります。あらかじめご了承ください。

● 設置環境

本製品は、EN61326-1 で定義される工業環境で使用することを想定した製品ではありません。
工業環境においては、電磁妨害の影響を受ける可能性があり、その場合には使用者が適切な対策を講ずることが必要となることがあります。

本製品は、EN61010-1 で定義される以下の環境用に設計されています。

- 過電圧カテゴリー II
- 汚染度 2

● Safety precautions

This section provides precautions to enable you to use the product safely and correctly and to prevent injury and damage. The terms of DANGER, WARNING, and CAUTION indicate the degree of imminency and hazardous situation. Read the precautions carefully as it contains important safety messages.

⚠ WARNING
Do not use an unspecified AC adapter. Otherwise, it may heat up or be ignited resulting in a fire or an accident.
Do not disassemble or modify the meter. Otherwise, it may heat up or be ignited resulting in a fire or an accident.
Fire • For your safety, make sure to unplug the power plug from the electrical outlet when not in use. • Clear dust on the power plug periodically (a few times a year). If the power supply cord is left plugging into the electrical outlet for a long period of time, electrical tracking may occur due to dust and moisture, and it may result in an ignition or a fire.
Fire or electric shock • Do not bundle the power supply cord during use. • Do not damage the power supply cord nor apply an excessive load to it, such as bending and stretching it repeatedly, putting a heavy thing on it. • If it cannot be plugged into an electrical outlet firmly, stop use of the power supply cord. If may result in overheating, a fire, an electrical shock, or breakdown.

⚠ CAUTION
Harmful chemicals Some ion electrodes are used with hazardous standard solutions. Handle them with care. If the internal solution comes in contact with the skin, wash it off immediately. If it gets into eyes, flush with plenty of water and then consult a doctor.
Harmful chemicals The internal solution of an electrode is highly concentrated potassium chloride (3.33 mol/L KCl). If the internal solution comes in contact with the skin, wash it off immediately. If it gets into eyes, flush with plenty of water and then consult a doctor.
Broken glass Broken glass may cause injury. The outer tube and tip of an electrode are made of glass. Handle them with care.

⚠ CAUTION
Do not use the cable of serial communication, USB, or AC adapter under wet or humid conditions. Otherwise, it may cause a fire, electric shock, or breakage.

■ Product Handling Information

● Operational precautions

- Only use the product including accessories for their intended purpose.
- Do not drop, crash, or give any physical impact on the instrument.
- Do not immerse the instrument into alcohol, organic solvent, strong acid, strong alkaline, or the like. The instrument body contains ABS resin, acrylic resin, and some rubber parts.
- If the instrument is dropped into water or gets wet, wipe it using soft cloth. Do not heat to dry it with a hair-dryer (or the like).
- Use fingers to press the operation keys or the touch panel. Do not use a hard object like a metal stick or rod.
- Be careful not to let water into the instruction inside. The instrument is not water-proof.
- To disconnect an electrode or interface cable, hold the connector and pull it off. If you pull at the cable, it may cause a breakage.
- The touch panel is capacitance-type. Make sure to turn OFF the power before cleaning the panel. If you wipe it with the power ON, it may cause instrument malfunction.
- RS-232C or USB communication between the instrument and a personal computer may fail because of environmental conditions, such as (radio/electromagnetic) noise.
- Make sure to use the provided power supply cable to power this product.

● Environmental conditions for use and storage

- Temperature: 0°C to 45°C
- Humidity: under 80% in relative humidity and free from condensation

Avoid the following conditions:

- Dusty environment
- Strong vibration
- Direct sunlight
- Corrosive gas environment
- Close to an air-conditioner
- Direct wind

● Transportation

When transporting the instrument, repackage it in the original package box. Otherwise, it may cause instrument breakage.

● Disposal

Standard solution used for the calibration must be under neutralized before the disposal. As for the disposal of the meter, treat it as an industrial waste.

■ Manual Information

● Description in this manual

NOTE

This interprets the necessary points for correct operation and notifies the important points for handling the product.

REF

This indicates the part where to refer for information.

HINT!

This indicates reference information.

● Original language

This is the English translation of an original Japanese document.

Contents

Chapter 1 About DS-71G

The benchtop type COND METER DS-71G is optimized for laboratory measurement, and allows you to measure conductivity, resistivity, salinity, and TDS.

It provides a comfortable measurement environment with the design easy to wipe clean without roughness on the surface, and the free-standing electrode stand and the custom LCD for ease of measurement.

Chapter 2 Information of DS-71G

2.1 Measurement Items

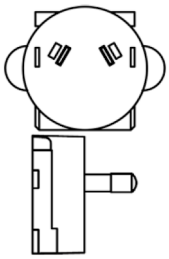
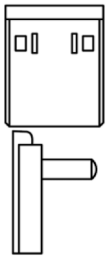
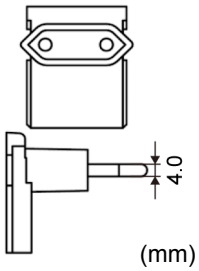
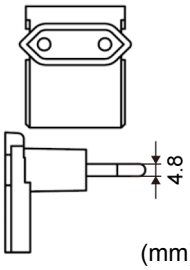
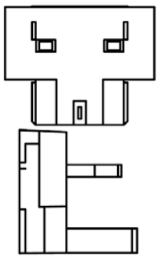
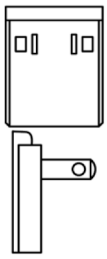
- Conductivity
- Salinity
- Resistivity
- TDS (Total Dissolved Solids)
- Temperature

2.2 Packing List

The DS-71G's package includes the following.
Electrodes are required for the measurement in addition to this package. If you want to buy an electrode, contact our representatives in your region.

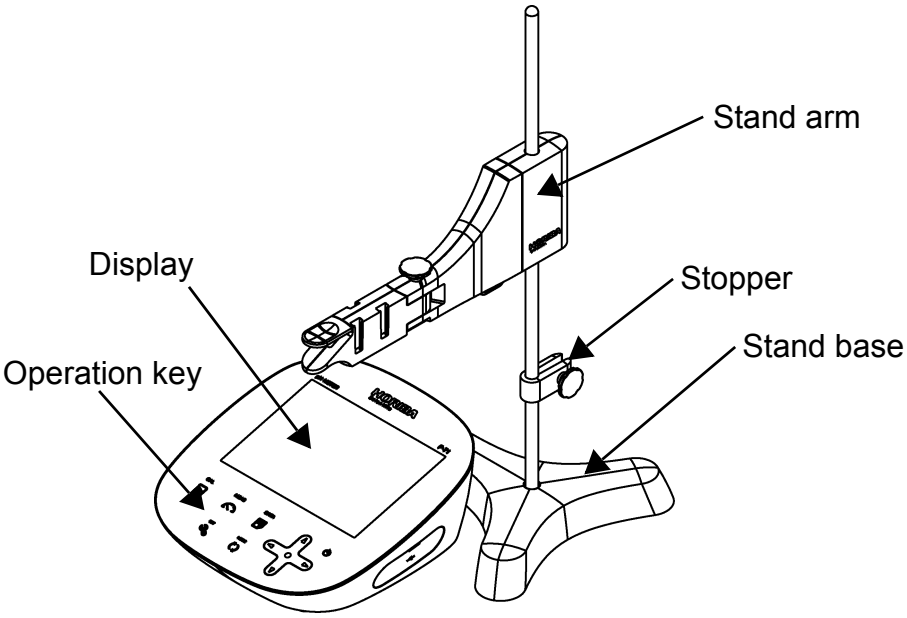
Product	Quantity
Main unit	1
Electrode stand	1
Instruction Manual	1
Quick Manual	1
AC adapter *	1
Rubber Cover	1

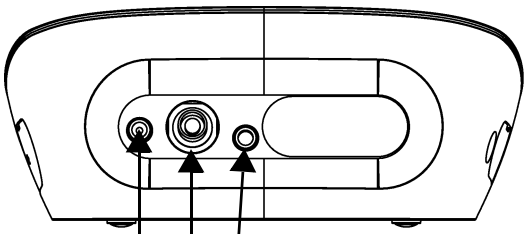
*: The AC adapter includes 6 plug adapters. Referring to the following table, attach the appropriate plug adapter to the AC adapter depending on the country to be used.

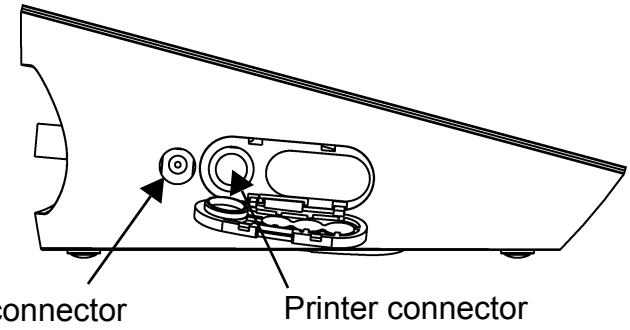
① Australia	② China	③ Europe	④ Korea	⑤ U.K., Singapore	⑥ USA, Canada, Taiwan
					

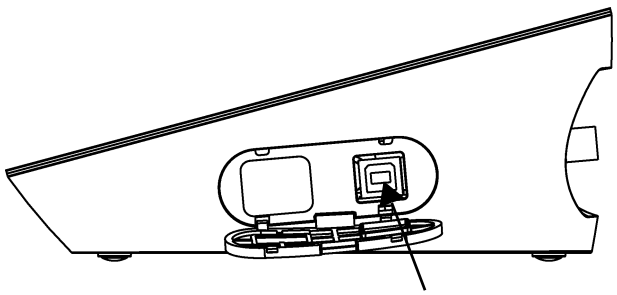
2.3 Names and Functions

2.3.1 Names of Each Part









Connector for USB communication with a personal computer

2.3.2 Identification of Manufacturing Date

Manufacturing date can be identified from MFG No. described in the ID label on the backside of the instrument.

Third number from the left in the MFG No. indicates manufacturing year.

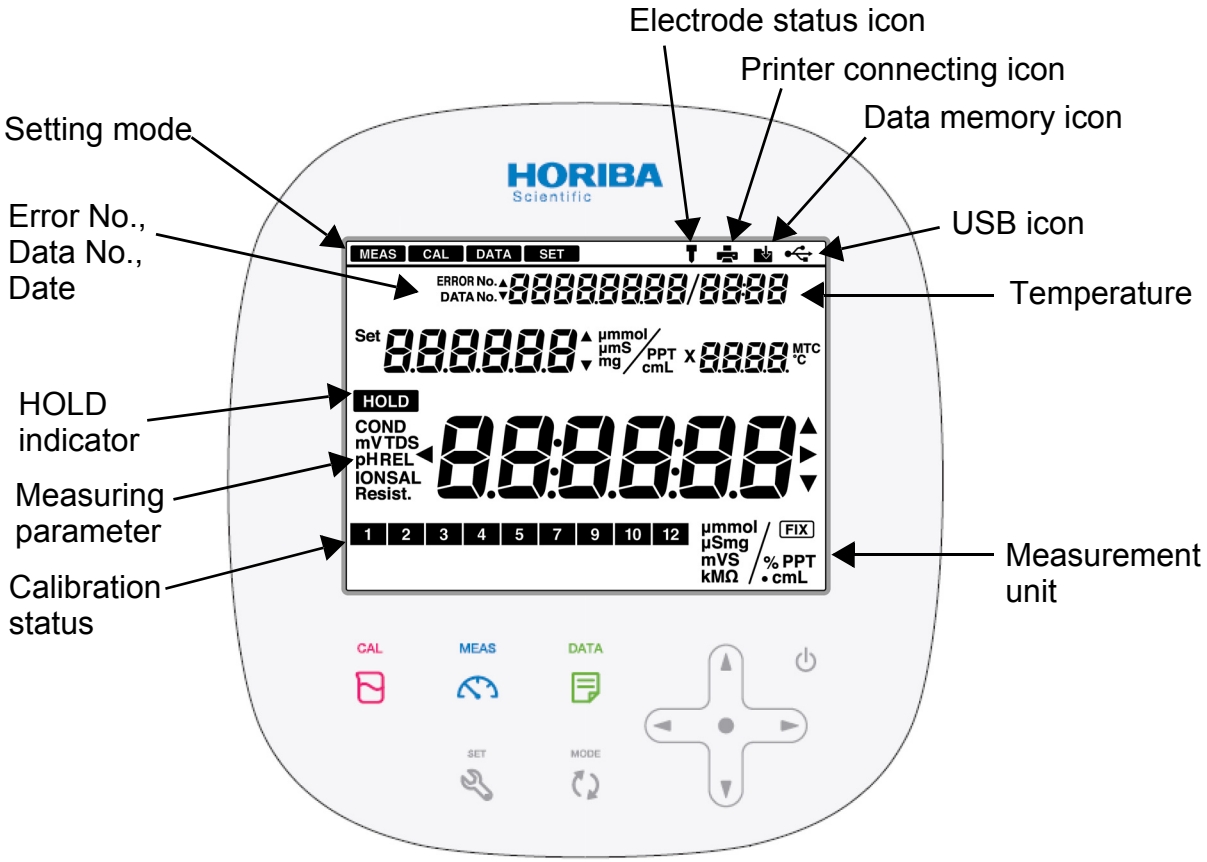
Forth alphabet from the left in the MFG No. indicates manufacturing month.

The alphabet is assigned to month according to the table below.

Ex.: ID: AA6A0000 means the device manufactured in 2016 January.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
A	B	C	D	E	F	G	H	J	K	L	M

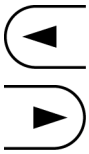
2.3.3 Display


Electrode status icon
Printer connecting icon
Data memory icon
Setting mode
USB icon
Error No.,
Data No.,
Date
Temperature
HOLD
indicator
Measuring
parameter
Calibration
status
Measurement
unit
HORIBA
Scientific
MEAS
CAL
DATA
SET
HOLD
CAL
MEAS
DATA
SET
MODE

2.3.4 Operation Key

This instrument employs capacitance switches.

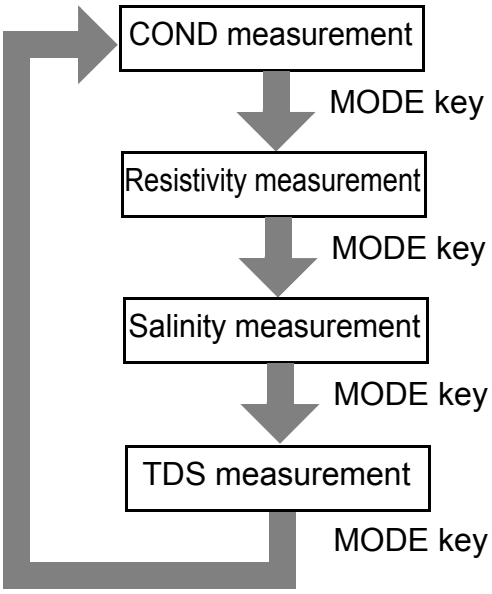
You cannot operate them with thick gloves. Operate them with bare hands or thin rubber gloves.

Operation key		Function
CAL 	CAL key	Starts/stops calibration or enters the calibration mode.
MEAS 	MEAS key	Starts/stops measurement or enters the measurement mode. Applies the setting values of the setting mode.
DATA 	DATA key	Enters the data operation mode. Printouts calibration value.
SET 	SET key	Enters the setting mode. Cancels the setting values of the setting mode.
MODE 	MODE key	Toggles the measurement items.
	▲ key ▼ key	Increases the values. Decreases the values. Switches the setting item. Switches the CH items.
	◀▶ key	Change number of digits, selects functions. Printouts measurement values. (▶ key)
	ENTER key	Settlement, execution, printout (except measurement values) Start/stops automatic data memory.
	POWER key	Turns ON or OFF the power.

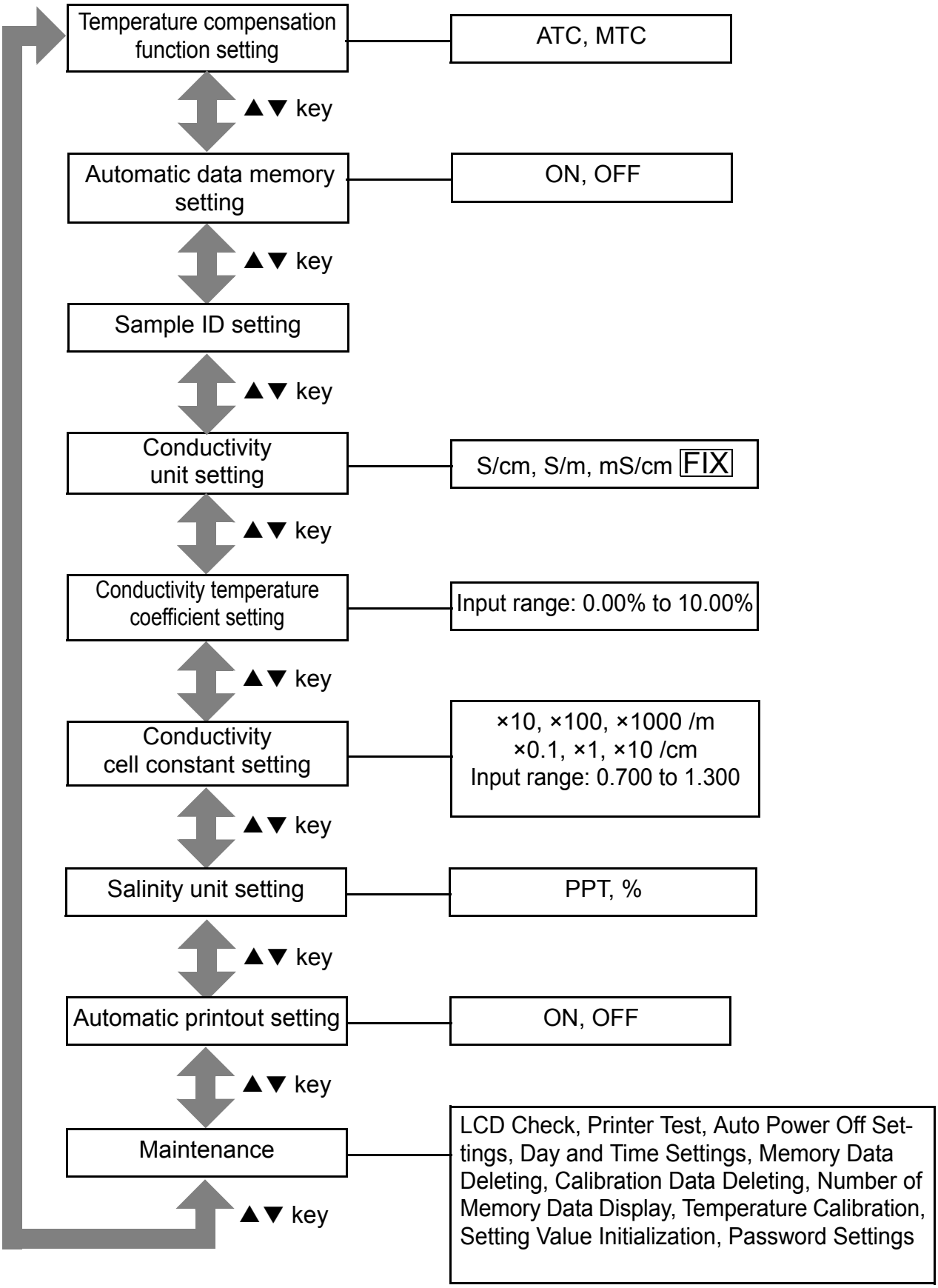
NOTE

Press the POWER key for 1 second or longer to turn ON the power, for 2 seconds or longer to turn OFF the power.

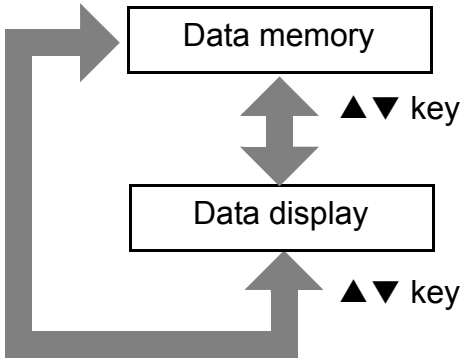
2.4 Measurement (MEAS) Flow Chart



2.5 Setting (SET) Flow Chart



2.6 Data (DATA) Flow Chart

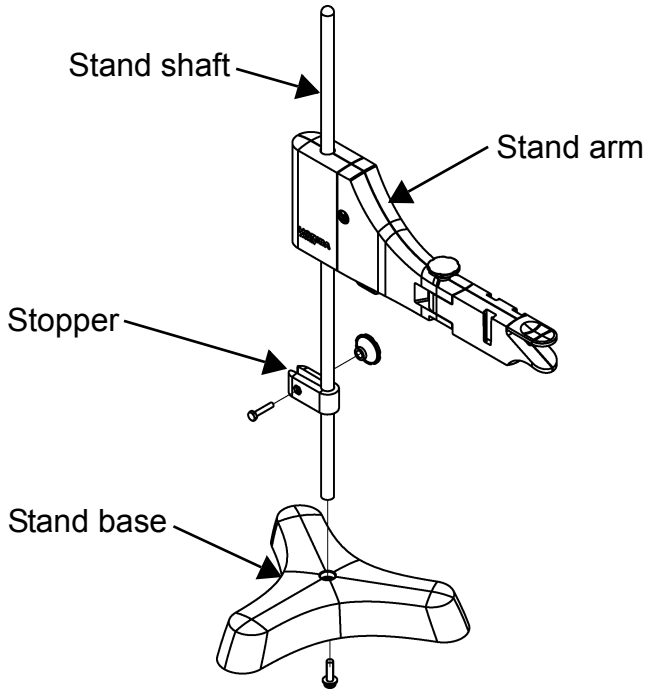


Chapter 3 Basic Operation

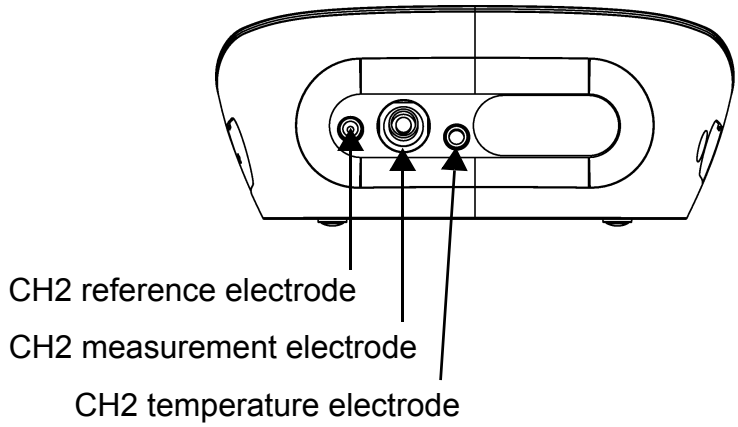
3.1 Preparation

3.1.1 Assembling the Electrode Stand

1. Attach the stand shaft to the stand base.
2. Attach the stopper and the stand arm to the stand shaft.



3.1.2 Electrode Connection

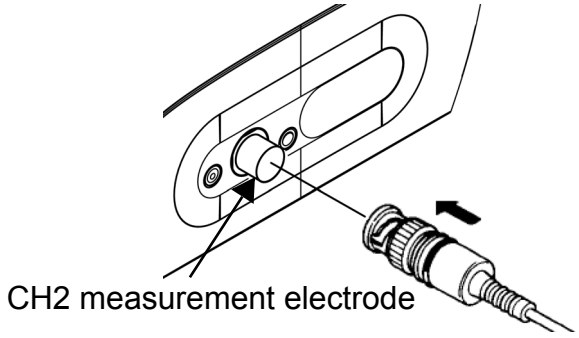


● Electrode connector

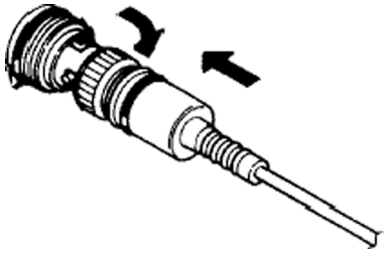
1. Insert the groove of electrode plug by fitting it with the socket pin of the instrument.

NOTE

If the pin and groove are misaligned, do not insert the plug with force.



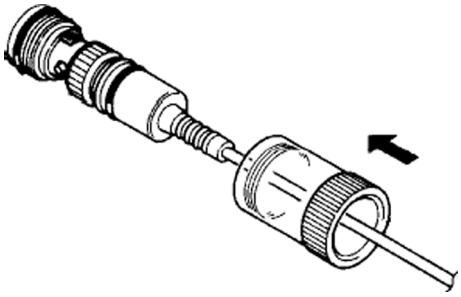
2. Turn the electrode connector to the right along the groove to plug the connector.



3. Put the connector cover on the connector.

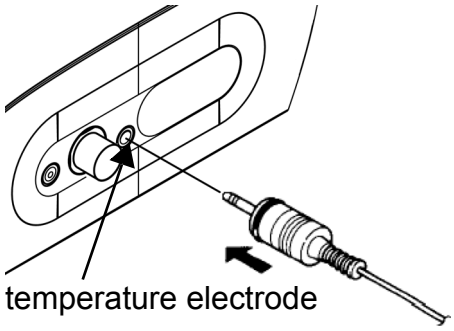
NOTE

Just push the cover on the instrument. Do not screw in it.



● Temperature connector

1. Insert the temperature connector into the jack socket on the instrument.

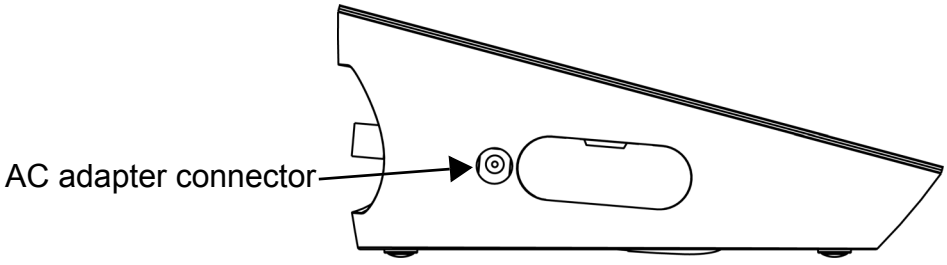


NOTE

If the temperature connector is unconnected or the connection is wrong, the MTC set temperature is displayed as the sample temperature.

3.1.3 Connecting the Power Source

1. Insert the AC adapter cable by fitting with the connector socket of in the instrument.



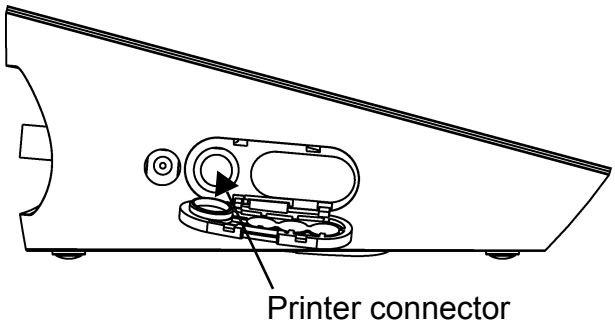
NOTE

Do not insert the cable with force when the connectors do not match.

3.1.4 Connecting and Setting the Printer

● Connecting the Printer

1. Insert the printer cable by fitting with the connector socket of the instrument.



The following printer is possible.

Printer

- CITIZEN CBM-910-24RJ120 V:
  plain paper type (Parts No.: 3014030146)
- CITIZEN CBM-910-24RJ230 V:
  plain paper type (Parts No.: 3014030147)
- Optional printer cable (Parts No.: 3014030148) is required.

NOTE

- Make sure to use an appropriate cable for the printer.
- Make sure to power OFF the instrument before connecting a printer.
- When you do not connect a printer with the instrument, disconnect the printer cable and put the rubber cap firmly on the connector sockets on the instrument.

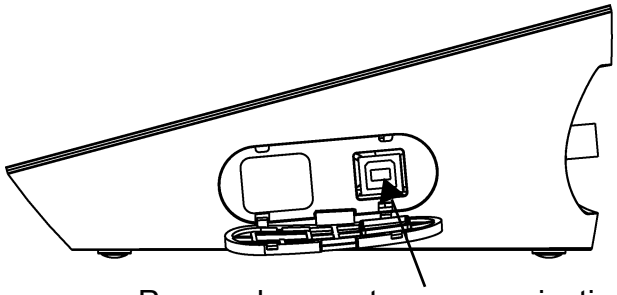
● Setting the Printer

Refer to the instruction manual of the printer for settings and operations of the printer.

(1) Set the DIP switch No. 6 to ON and No. 7 to OFF, and then set printer paper and ink ribbon. Keep the LF key held down.

(2) Keep the SEL key held down.
The printer prints output when the SEL key is being pressed.

3.1.5 Connecting the Personal Computer



Personal computer communication connector

- Use proprietary cables to connect with a personal computer.
  Proprietary cable
  Parts name: USB cable (1 m)
  Parts No.: 3200373941
- Make sure that the transfer formats of the measuring instrument and personal computer are same. Otherwise, communication may fail due to a communication error or the online mode start failure. If you change the transfer formats, power OFF both of the instrument and the personal computer once, and then turn on them again.
- For the details of communication commands, register with our website and see the free download page of manuals.

3.2 Settings

This section describes the procedures of the instrument condition settings for measurement, calibration, and maintenance.

The settings apply when you press the MEAS key to return to the measurement screen.

If you press the SET key during setting or after pressing the ENTER key, the settings are cancelled.

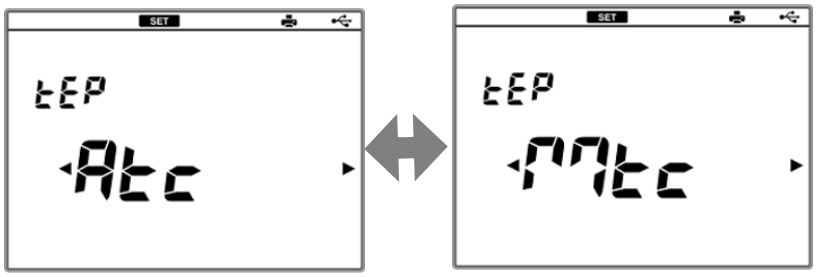
3.2.1 Temperature Compensation Function Setting

You can perform temperature compensation for conductivity electrode outputs.

1. Press the SET key on the measurement screen to enter the temperature compensation function setting screen.

2. Press the ENTER key to enter the temperature compensation function change screen.

3. Press the ◀ or ▶ key to change ATC or MTC, and press the ENTER key.



4. If you select MTC, press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key.
Setting range: 0°C to 100°C

ATC
In Automatic Temperature Compensation (ATC), the instrument detects the solution temperature. When the temperature sensor is connected, the current temperature of the solutions is displayed automatically. If the sensor is not connected, the set value for MTC (default: 25°C) is displayed.

MTC
In Manual Temperature Compensation (MTC), the temperature sensor of the electrode is not used, and the solution temperature is entered manually.

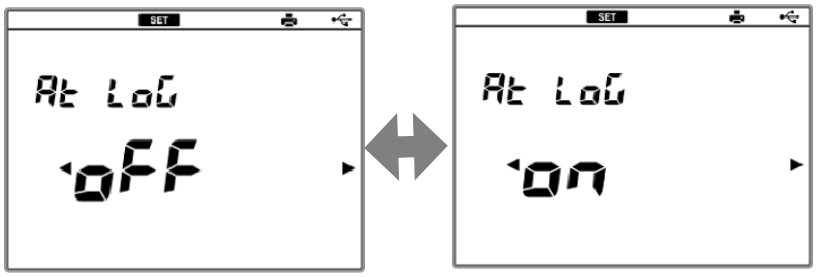
3.2.2 Auto Data Memory Setting

Data memory can be performed automatically at a regular interval.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the auto data memory setting screen.

2. Press the ENTER key to enter the auto data memory change screen.

3. Press the ◀ or ▶ key to change ON or OFF, and press the ENTER key.



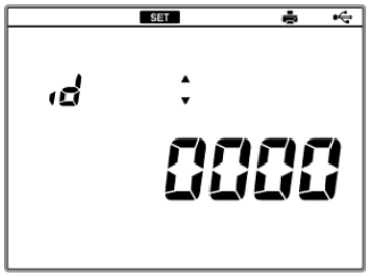
4. If you select ON, press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key.

   Setting range: 2 seconds to 24 hours

3.2.3 Sample ID Setting

If a sample ID is set here, it is recorded together with the measurement data at the data memory and it allows you to search data easily.

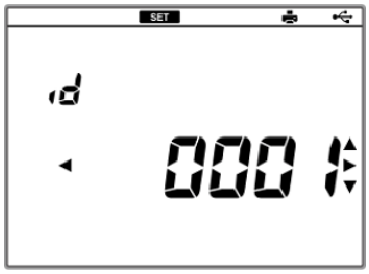
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the sample ID setting screen.



2. Press the ENTER key to enter the sample ID change screen.

3. Press the ◀ or ▶ key to select digit and press the ▲ or ▼ key to change value, and press the ENTER key.

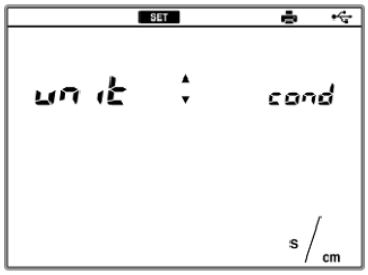
   Setting range: 0 to 9999



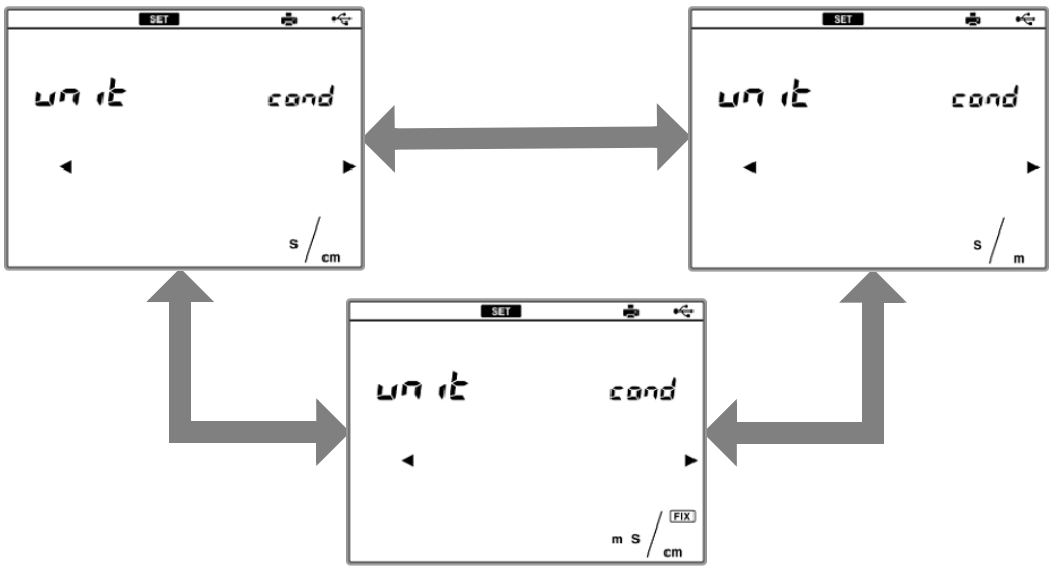
3.2.4 Conductivity Unit Setting

Select the unit of electric conductivity measurement among S/cm, S/m, and mS/cm FIX. When mS/cm FIX is selected, the unit is fixed to mS/cm.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the conductivity unit setting screen.



2. Press the ENTER key to enter the conductivity unit change screen.
3. Press the ◄ or ► key to select S/cm, S/m or mS/cm FIX, and press the ENTER key.



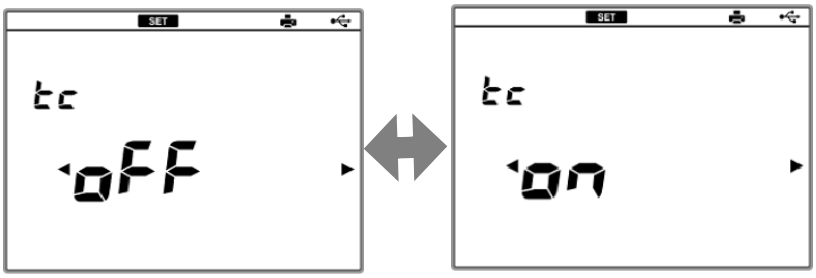
3.2.5 Conductivity Temperature Coefficient Setting

Set the coefficient used for temperature compensation in electric conductivity measurement (Input range: 0.00% to 10.00%). The default is 2.00%.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the conductivity unit setting screen.

2. Press the ENTER key to enter the conductivity temperature coefficient change screen.

3. Press the ◀ or ▶ key to change ON or OFF, and press the ENTER key.

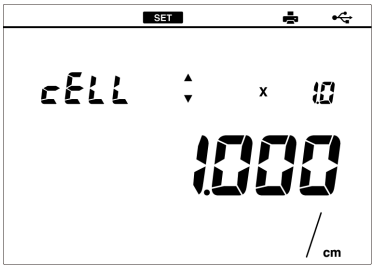


4. Press the ◀ or ▶ key to select digit and press the ▲ or ▼ key to change value, and ENTER key.
Setting range: 0.00% to 10.00%

3.2.6 Conductivity Cell Constant Setting

Set the cell constant of electrode (Setting range: 0.700 to 1.300). When using an electrode for the instrument for the first time, set the cell constant written on the label of the electrode.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the conductivity cell constant setting screen.



2. Press the ENTER key to enter the conductivity cell constant change screen.

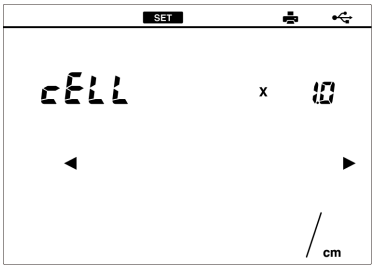
When the ◀ or ▶ key is pressed, the display changes depending on the current unit setting.

For the SI unit (S/m)

×10 → ×100 → ×1000 → ×10

For the conventional units (S/cm, mS/cm FIX)

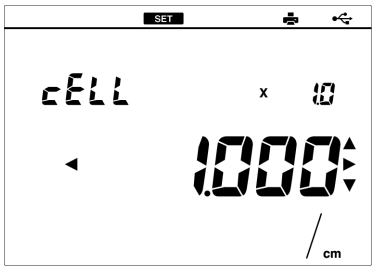
×0.1 → ×1 → ×10



3. Press the ENTER key.

4. Press the ◀ or ▶ key to select digit and press the ▲ or ▼ key to change value, and press the ENTER key.

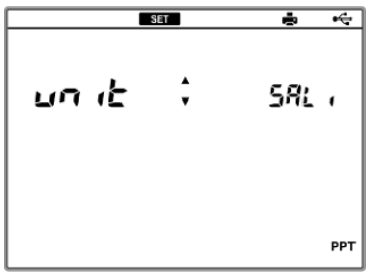
Setting range: 0.700 to 1.300



3.2.7 Salinity Unit Setting

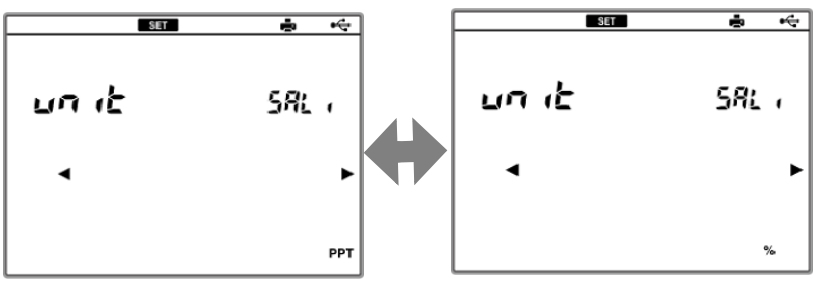
You can select the unit of salinity measurement between PPT and %.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the salinity unit setting screen.



2. Press the ENTER key to enter the salinity unit change screen.

3. Press the ◀ or ▶ key to select PPT or %, and press the ENTER key.



3.2.8 Auto Printer Setting

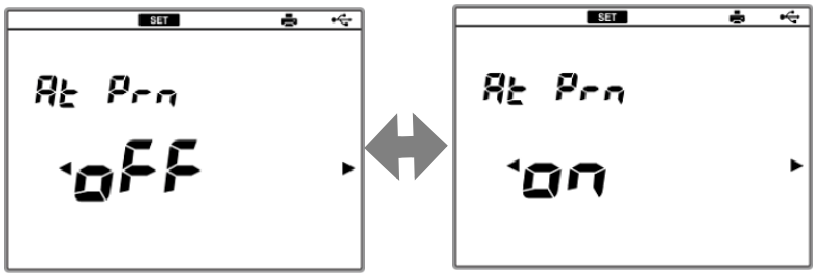
You can set automatic printout when a printer is connected.
When this setting is ON, automatic printout is executed at the following occasions.

- You perform data memory during measurement.
- Calibration or check is completed in the calibration mode.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the auto printer setting screen.

2. Press the ENTER key to enter the auto printer setting change screen.

3. Press the ◀ or ▶ key to select ON or OFF, and press the ENTER key.



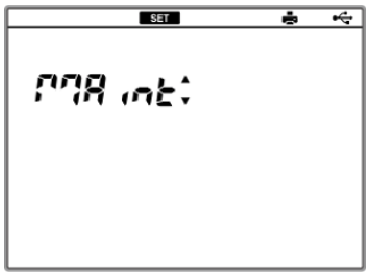
3.2.9 Maintenance

The functions on the maintenance screen help you to use the instrument in good conditions.

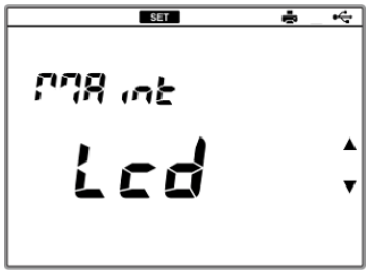
● LCD Check

You can check the LCD.

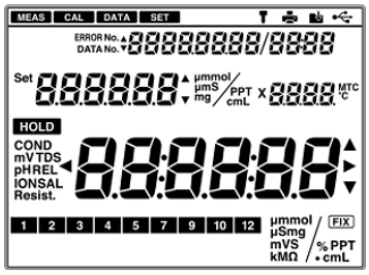
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



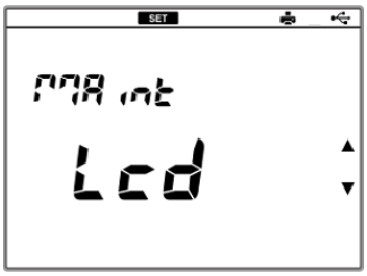
2. Press the ENTER key to enter the maintenance item selecting screen.



3. Press ENTER key to indicate the all LCD.



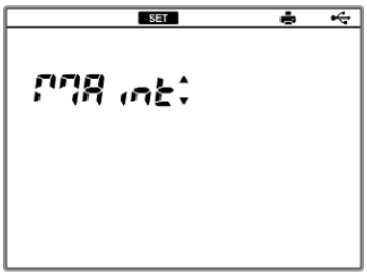
4. Press the ENTER key to return to the maintenance item selecting screen.



● Printer Test

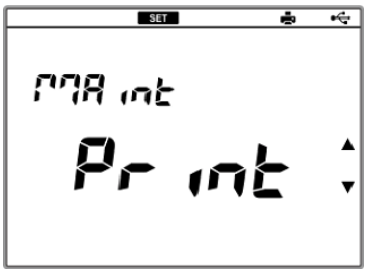
You can check the printer connection and printout operation.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.

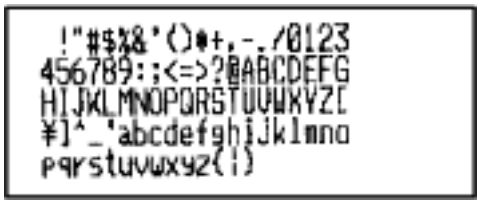


2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the printer test screen.



4. Press the ENTER key to start the printing.

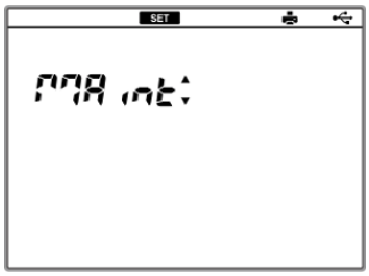


5. Press the ENTER key to return to the printer test screen.

● Auto Power Off Setting

You can set ON/OFF of the auto power off function. When this function is ON and no key operations are performed for the set period, the instrument is powered OFF automatically.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.

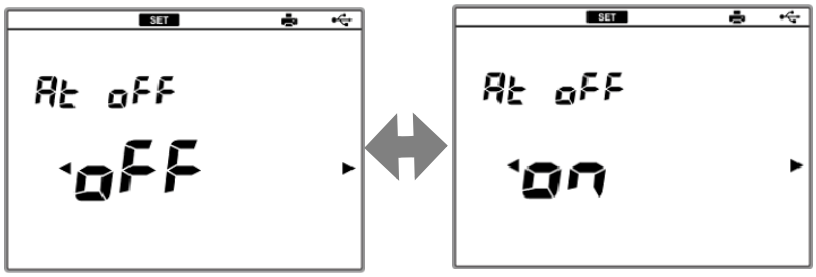


2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the auto power off setting screen.

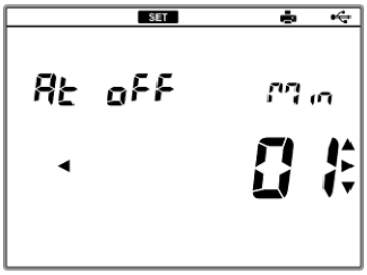
4. Press the ENTER key to enter the auto power off change screen.

5. Press the ◀ or ▶ key to change ON or OFF, and press the ENTER key.



6. Press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key and press the ENTER key to return to the auto power off change screen.

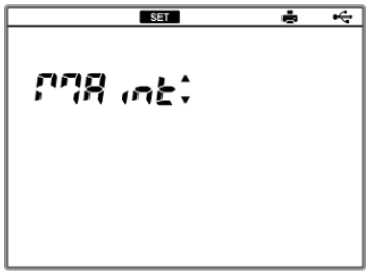
Setting range: 1 to 30 minutes



● Date Setting

Perform this operation when you use the instrument for the first time or replace the lithium batteries.

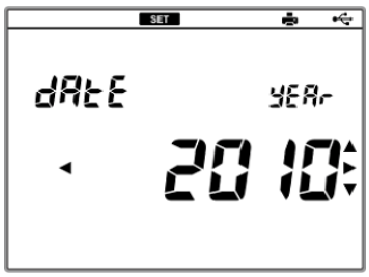
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the date setting screen.

4. Press the ENTER key to enter the year setting screen. Press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key.



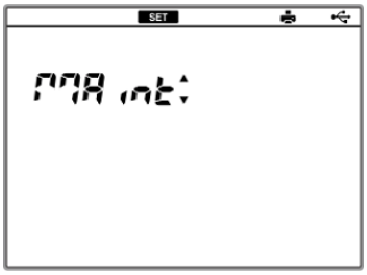
5. Press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value for month and day setting, and then press the ENTER key.

6. Press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value for hour and minute setting, and press the ENTER key to return to the date setting screen.

● Memory Data Clearing

You can delete the memory data of the instrument. This operation is irreversible. We recommend printing out or saving data into a PC ("3.1.5 Connecting the Personal Computer" P.15) before this operation.

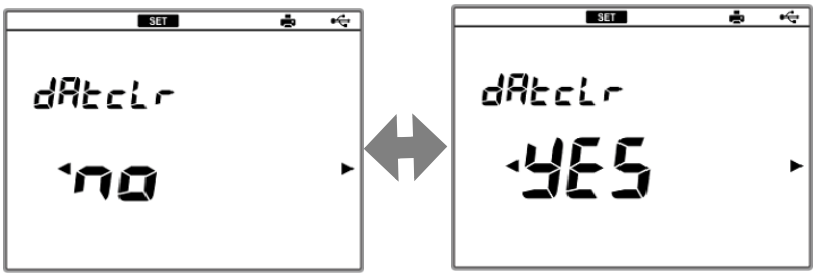
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



2. Press the ENTER key to enter the maintenance item selecting screen.

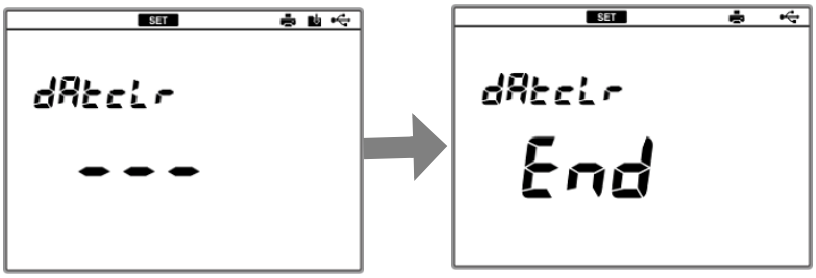
3. Press the ▲ or ▼ key to enter the memory data clear screen.

4. Press the ENTER key to enter the memory data clear (Yes/No) screen.



5. Press the ◀ or ▶ key to select Yes, and press ENTER key to delete the memory data.

When the deletion is completed, "End" is displayed.



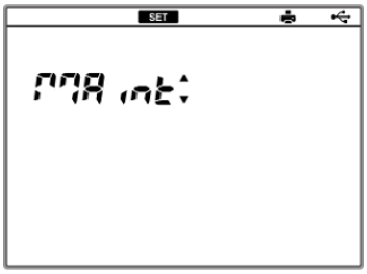
6. Press the ENTER key to return to the memory data clear screen.

● Calibration Data Clearing

You can delete the calibration data of conductivity and salinity to initialize them.

Note that this operation is irreversible.

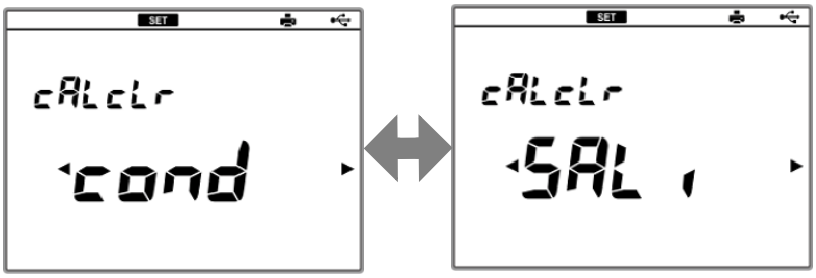
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



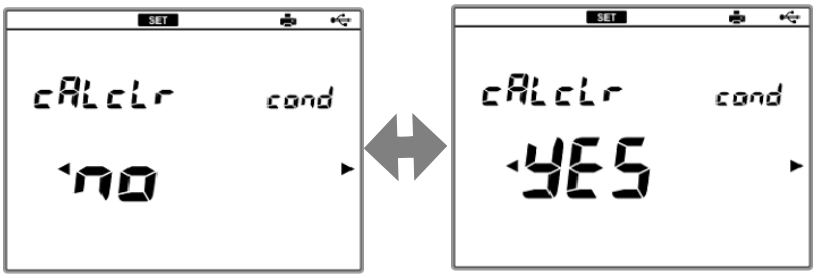
2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the calibration data clear screen.

4. Press the ENTER key and the ◀ or ▶ key to select the measurement item to be deleted.



5. Press the ENTER key to enter the calibration data deleting (Yes/No) screen.



6. Press the ◀ or ▶ key to select Yes, and press ENTER key to delete the calibration data.

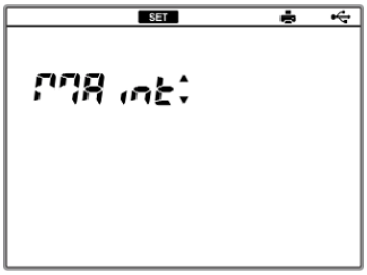
When the deletion is completed, "End" is displayed.

7. Press the ENTER key to return to the calibration data clear screen.

● Number of Memory Data Display

The number of memory data saved in the instrument is displayed. You can store up to 999 data.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the number of memory data display screen.

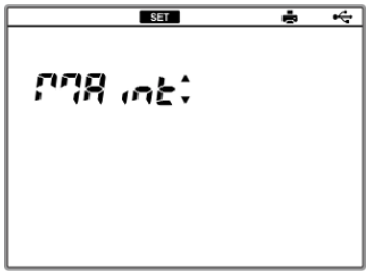
4. Press the ENTER key to display the number of the memory data currently saved in the instrument.

5. Press the ENTER key to return to the number of memory data display screen.

● Temperature Calibration

You can perform calibration of the temperature sensor of an electrode.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the temperature calibration screen.

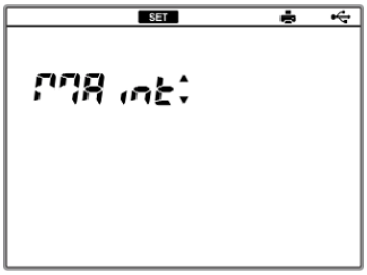
4. Press the ENTER key to enter the temperature display value change screen.

5. Press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key to return to the temperature calibration screen.

● Setting Initialization

The settings are initialized.
Refer to "5.2 Default Settings" P.65 for default settings.

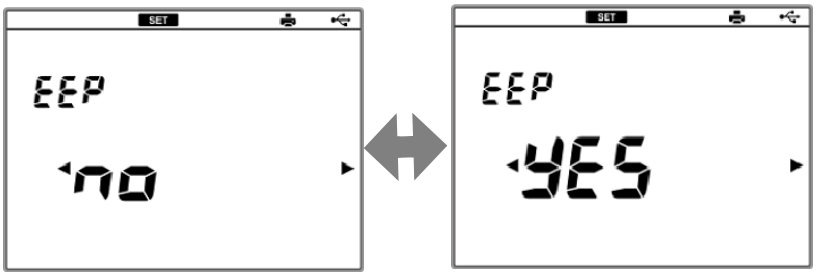
1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.



2. Press the ENTER key to enter the maintenance item selecting screen.

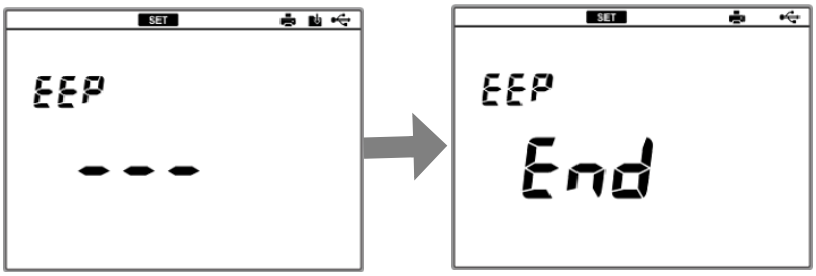
3. Press the ▲ or ▼ key to enter the initializing settings screen.

4. Press the ENTER key to enter the initializing settings (Yes/No) screen.



5. Press the ◀ or ▶ key to select Yes, and press ENTER key to initialize the settings.

The initializing is complete when "End" is displayed.

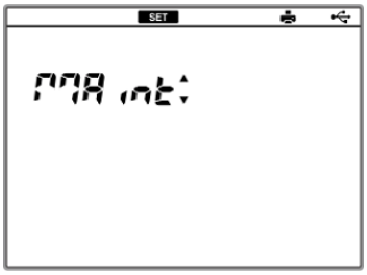


6. Press the ENTER key to return to the initializing settings screen.

● Password Setting

This function prevents an unauthorized person from tampering the date of measurement data, or operating accidentally to change settings, delete memory data, etc.

1. Press the SET key on the measurement screen, and press the ▲ or ▼ key to enter the maintenance screen.

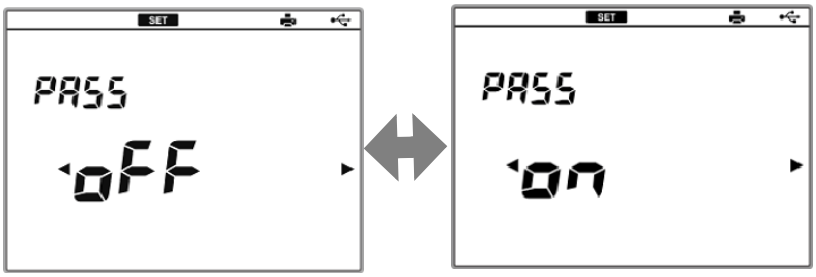


2. Press the ENTER key to enter the maintenance item selecting screen.

3. Press the ▲ or ▼ key to enter the password settings screen.

4. Press the ENTER key to enter the password change screen.

5. Press the ◀ or ▶ key to change ON or OFF, and press the ENTER key.



6. If you select ON, press the ◀ or ▶ key to select a digit and press the ▲ or ▼ key to change the value, and then press the ENTER key and press the ENTER key to return to the password change screen.

Setting range: 0000 to 9999

NOTE

If this setting is ON, password entry is required when you power ON the instrument. Enter the password and press the ENTER key.

If you forget the password, contact our representatives in your region.

3.3 Calibration

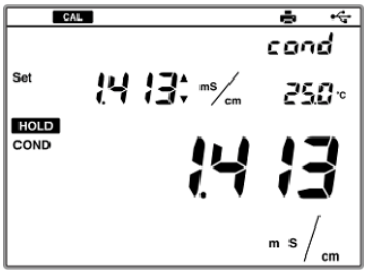
3.3.1 Conductivity Calibration

The cell constant of the electrode may change according to the using conditions. The calibration updates the cell constant to be appropriate for the current electrode.

1. Wash the electrode with pure water (deionized), and wipe it off by filter paper or tissue paper.
2. Immerse the electrode in the conductivity standard solution.
3. Press the CAL key on the measurement screen is displayed to enter the calibration screen.
4. Press the ◀ or ▶ key to select digit and press the ▲ or ▼ key to change value, to set the value of the conductivity standard solution at 25°C.

5. Check the stable indication value, and press the CAL key.

   The HOLD indicator blinks until the reading stabilizes. When the reading stabilizes, the HOLD indicator lights up and the reading is held.



6. After the calibration is completed, press the MEAS key to return to the measurement screen.

NOTE

The conductivity value of the standard solution used in the calibration process is the compensated value into the calibrating temperature by the temperature coefficient 2%/°C from the 25°C value.
For more precise measurement, it is recommended to operate the calibration process at 25°C.

● Conductivity standard values at various temperature

Temp. (°C)	Conductivity value at 25°C			
	84.00 (μS/cm)	1413 (μS/cm)	12.88 (mS/cm)	111.8 (mS/cm)
0	64.01	776	7.15	65.4
5	65.00	896	8.22	74.1
15	67.00	1020	9.33	83.2
16	68.00	1147	10.48	92.5
17	70.00	1173	10.72	94.4
18	71.00	1199	10.95	96.3
19	73.00	1225	11.19	98.2
20	74.00	1251	11.43	100.2
21	76.00	1278	11.67	102.1
22	78.00	1305	11.91	104.0
23	79.00	1332	12.15	105.9
24	81.00	1359	12.39	107.9
25	82.00	1386	12.64	109.8
26	84.00	1413	12.88	111.8
27	86.00	1440	13.13	113.8
28	87.00	1467	13.37	115.7
29	89.00	1494	13.62	117.7
30	90.00	1521	13.87	119.7
31	92.00	1548	14.12	121.8

3.3.2 Salinity Calibration

You can perform 1 point calibration using a salinity standard solution.

1. Prepare the electrode.
   Wash the electrode with pure water (deionized), and wipe it off by filter paper or tissue paper.
2. Immerse the electrode in the desired standard solution used for calibration.
3. Press the MODE key on the measurement screen to enter the salt measurement screen.
4. Press the CAL key to enter the salinity calibration screen.
5. Press the ◀ or ▶ key to select digit and press the ▲ or ▼ key to change value, to set the value of the desired standard solution.

6. Check the stable indication value, and press the CAL key.
   The HOLD indicator blinks until the reading stabilizes. When the reading stabilizes, the HOLD indicator lights up and the reading is held.

7. After the calibration is completed, press the MEAS key to return to the measurement screen.

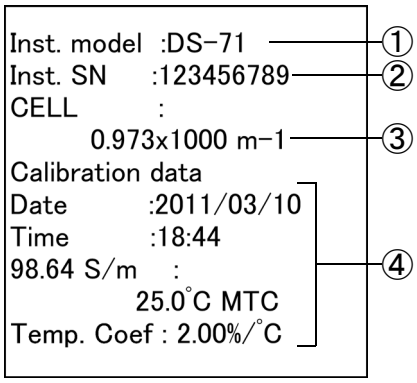
3.3.3 Calibration Value Printing

You can print out the data during calibration HOLD or calibration error.

1. Check the printer settings and that the printer is connected correctly. (Refer to "3.1.4 Connecting and Setting the Printer" P.14.)
2. Press the DATA key during calibration HOLD or calibration error. The currently displayed data is printed out.

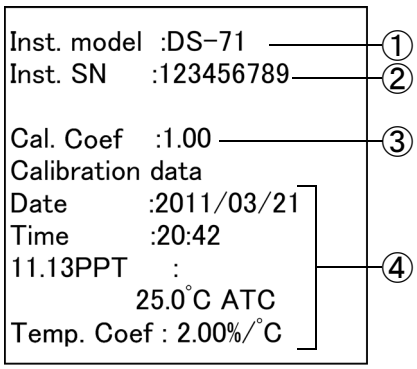
Printing examples are shown below.

● Printing at COND calibration



① Instrument model
② Serial number
③ Cell constant
④ Calibration data

● Printing at salinity calibration



① Instrument model
② Serial number
③ Calibration coefficient
④ Calibration data

3.4 Measurement

3.4.1 Measurement Value Hold

The instrument can hold the measurement value automatically when it judges that the value is stable.

Press the MEAS key when the instantaneous value is displayed in the instantaneous measurement, and the HOLD indicator blinks. Then, when the value is stable, the HOLD indicator lights up and the value is held.

To cancel the HOLD state or to stop the stability judgment (HOLD blinking), press the MEAS key again.

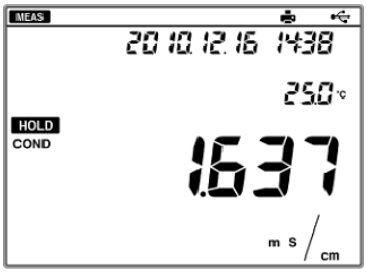
● Stabilization Criteria

Conductivity, resistivity, salinity, and TDS measurements:

Display change in 10 seconds: within ±3 digit

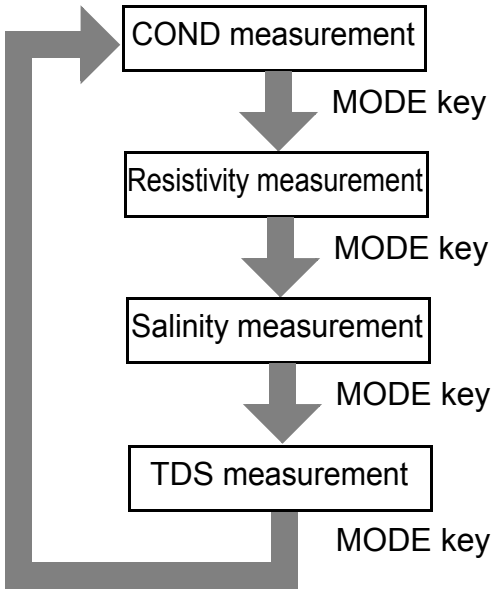
Temperature measurement:

Temperature change in 10 seconds: within ±2°C



3.4.2 Measurement Items Changing

When the MODE key is pressed, measurement item can be changed.

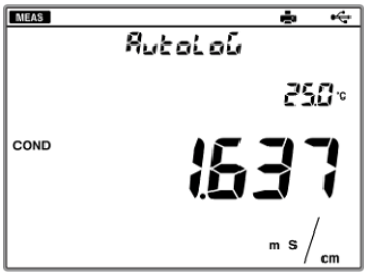


3.4.3 Auto Data Memory

The instrument can perform data memory automatically at a regular interval. Refer to "3.2.2 Auto Data Memory Setting" P.18 for the setting operations.

If the auto power off setting is ON, it is temporarily OFF while this function is active.

1. After the interval setting is completed, press the MEAS key to return to the measurement screen. "Auto LOG" is displayed on the screen.



2. Press the ENTER key.
"Auto LOGGING" is displayed on the screen, and the auto data memory function starts.

3. To stop the auto data memory, press the ENTER key.

NOTE

- Do not power ON/OFF while the auto data memory function works.
  It may damage the reliability of the memory data.
- Only the POWER, ENTER, and the ▲ or ▼ keys are possible while the auto data memory function works.
- The actual date of memory may have the difference of ±1 second from the time calculated based on the interval setting.
- When the number of memory data exceeds 999, data memory is stopped and ERROR No.0010 is displayed.

3.4.4 Measurement Value Printing

You can print out measurement values or the HOLD value.

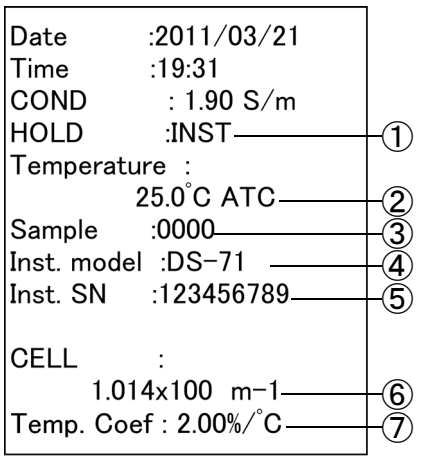
When the automatic printout setting is ON, automatic printout is executed at the following occasions.

- You perform data memory during measurement.
- Calibration or check is completed in the calibration mode.

1. Check that the printer settings and connection are correctly. (Refer to "3.1.4 Connecting and Setting the Printer" P.14.)

2. Press the ▶ key in the measurement mode or HOLD state. The currently displayed measurement value is printed out. Printing examples are shown below.

● Conductivity measurement mode



① HOLD condition
At HOLD: AUTO
Instant value: INST

② Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

③ Sample ID

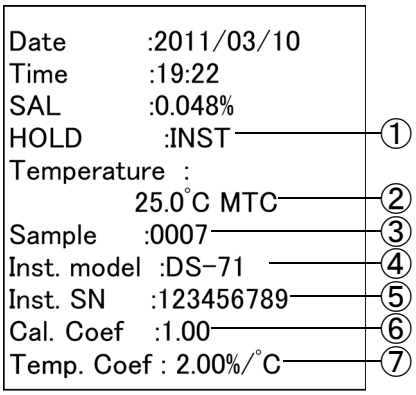
④ Instrument model

⑤ Serial number

⑥ Cell constant

⑦ Temperature coefficient

● Salinity measurement mode



① HOLD condition
At HOLD: AUTO
Instant value: INST

② Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

③ Sample ID

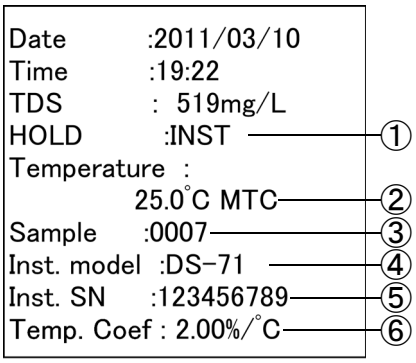
④ Instrument model

⑤ Serial number

⑥ Calibration coefficient

⑦ Temperature coefficient

● TDS measurement mode



① HOLD condition
At HOLD: AUTO
Instant value: INST

② Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

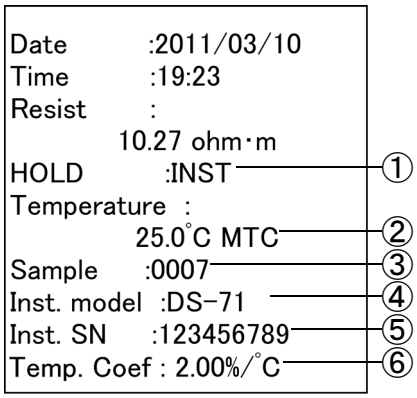
③ Sample ID

④ Instrument model

⑤ Serial number

⑥ Temperature coefficient

● Resistivity measurement mode



① HOLD condition
At HOLD: AUTO
Instant value: INST

② Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

③ Sample ID

④ Instrument model

⑤ Serial number

⑥ Temperature coefficient

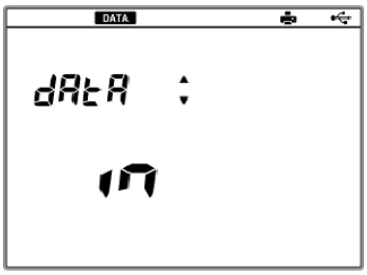
3.5 Data Operation

3.5.1 Data Memory of Measurement Value

Measurement data can be stored into the instrument memory.

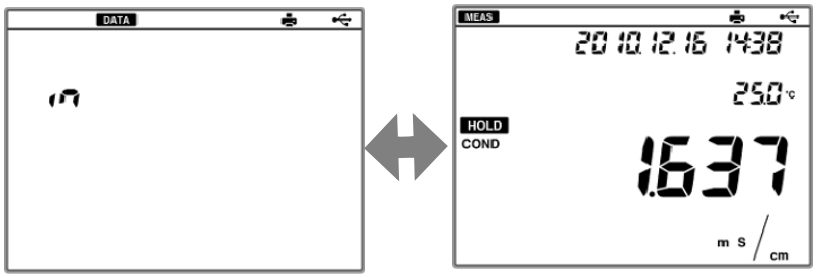
Refer to "3.4.3 Auto Data Memory" P.46 for automatic data memory.

1. Press the DATA key to enter the data operation screen.



2. Press the ENTER key to enter the data memory screen.

   The measurement value and "IN" are alternately displayed.



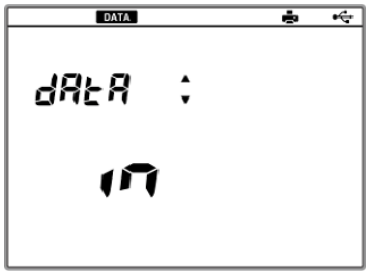
3. Press the ENTER key.

   The measurement data is stored into the memory.

3.5.2 Memory Data Display

The memory data can be displayed on the screen.

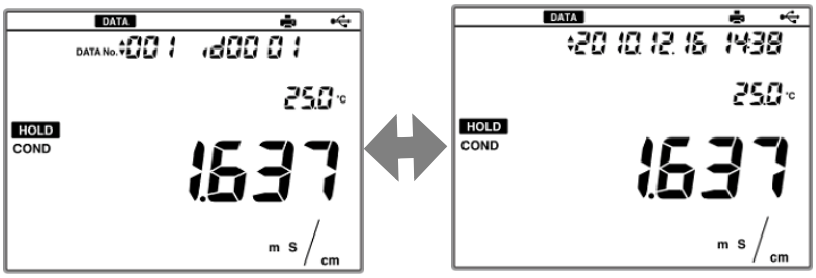
1. Press the DATA key to enter the data operation mode.



2. Press the ▲ or ▼ key to enter the memory data display screen.

3. The latest data is displayed.

4. Press the ◀ or ▶ key to switch between date display and DATA No/ID No. display. Press the ▲ or ▼ key to search past data.

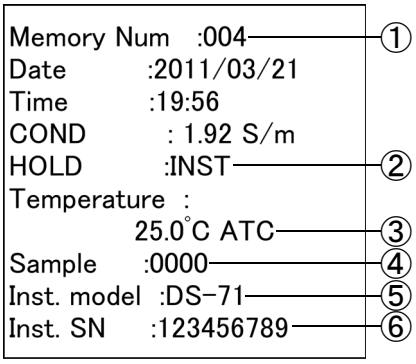


3.5.3 Memory Data Printing

The memory data can be printed out.

1. Display the memory data referring to "3.5.2 Memory Data Display" P.51.
2. Press the ENTER key.
   The displayed measurement data is printed out.

● COND measurement mode



① Memory number

② HOLD condition
At HOLD: AUTO
Instant value: INST

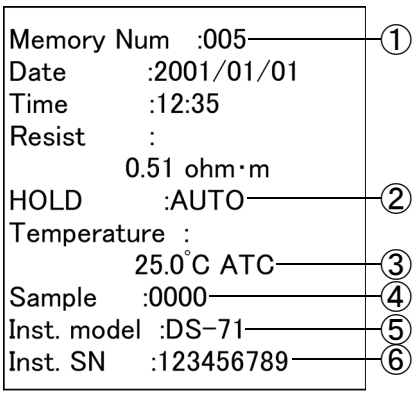
③ Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

④ Sample ID

⑤ Instrument model

⑥ Serial number

● Resistivity measurement mode



① Memory number

② HOLD condition
At HOLD: AUTO
Instant value: INST

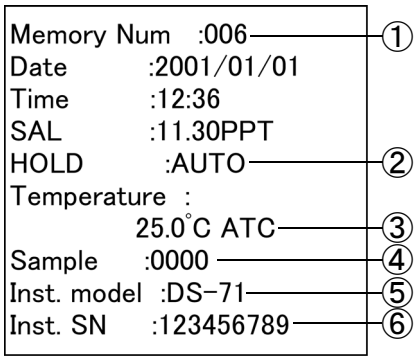
③ Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

④ Sample ID

⑤ Instrument model

⑥ Serial number

● Salinity measurement mode



① Memory number

② HOLD condition
At HOLD: AUTO
Instant value: INST

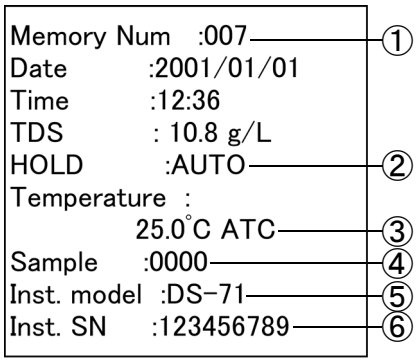
③ Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

④ Sample ID

⑤ Instrument model

⑥ Serial number

● TDS measurement mode



① Memory number

② HOLD condition
At HOLD: AUTO
Instant value: INST

③ Temperature compensation setting
At Manual mode: MTC
At Auto mode: ATC

④ Sample ID

⑤ Instrument model

⑥ Serial number

Chapter 4 Maintenance and Troubleshooting

This chapter explains the daily maintenance operations and error messages.

Daily maintenance is vital in assuring accurate measurement and preventing breakage from occurring. If electrode maintenance is neglected, it may cause various problems and erroneous measurements. This instrument is equipped with a convenient error message function. If an error message appears, be sure to take appropriate countermeasures.

4.1 Conductivity Electrode Maintenance

Refer to the electrode operation manuals for the maintenance operations of each electrode.

Long-term storage

When an electrode will not be used for a long period of time, store it after performing the following procedures. Also, perform the maintenance of the electrode every 3 to 6 months.

1. Disconnect the electrode from the instrument.
2. Use pure water to wash away any sample solution that may be adhered to the electrode.
3. Wash the inside of the electrode protective cap with pure water, then, after shaking out the water, fill the cap with enough pure water to soak the sponge.
4. Place the electrode protective cap on the electrode.

4.2 Troubleshooting

This instrument is equipped with a simple error-message function to notify the operator that an operation error or problem with the equipment has occurred. Errors or other problems that occur in the measurement mode are announced by an "ERROR No." appearing in the upper lefthand corner of the screen.

4.2.1 Error Message Chart

ERROR No.	Message	Definition
0001	Memory ERROR	Data cannot be read from or written to the internal memory.
0003	Unstable reading ERROR	The electric potential does not stabilize within three minutes.
0009	Printer communication ERROR	There is a problem with the printer communication.
0010	Data memory over	The number of the memory data exceeds the limit of the memory.
0011	Cell constant out of range	COND: The cell constant is out of the automatic calculation range.
000E	Key operation ERROR	Key operation is invalid.

● ERROR No.0001 Memory ERROR

Definition

Data cannot be read from or written to the internal memory.

Cause	Countermeasure
The instrument does not start properly due to noise or other at power ON.	Disconnect and reconnect the AC adapter, and press the ON/OFF key 10 seconds later. If the same error occurs again after the countermeasure is performed, contact our representatives in your region.
The internal IC is defective.	Contact our representatives in your region.

● ERROR No.0003 Unstable reading ERROR

Definition

The electric potential does not stabilize within three minutes.

Cause	Countermeasure
This is caused by the effect of the sample solution The sample solution is pure water or other solution with low conductivity, or the pH concentration or temperature change.	Press the MEAS key again while “HOLD” blinks or lights up, to measure the sample using instantaneous value measurement.
The electrode is dirty.	Wash the electrode.
The electrode is cracked.	Replace the electrode.
The responsive glass membrane of the electrode has been dry for a long time.	Soak the membrane (on the electrode) in pure water (deionized) for 24 hours.

Cause	Countermeasure
The temperature of the sample solution is fluctuating.	Measure after the sample solution temperature stabilizes.

● ERROR No.0009 Printer communication ERROR

Definition

There is a problem with the printer communication.

Power OFF the instrument and perform the countermeasures below, and then power ON again.

Cause	Countermeasure
There is a problem with the printer unit connection.	Check the printer connection, and connect the instrument and printer again.
The printer is defective.	Replace the printer. If the same error occurs again after the countermeasure is performed, contact our representatives in your region.

● ERROR No.0010 Data memory over

Definition

The number of the memory data exceeds the limit of the memory.

Cause	Countermeasure
Memory over	Check the contents of the memory data, and delete unnecessary data.

● ERROR No.0011 Cell constant out of range

Definition
The cell constant is out of the automatic calculation range.

Cause	Countermeasure
COND electrode is at the end of the useful life.	Replace the electrode.
Improper standard solution	Prepare new standard solution.

● ERROR No.000E Key operation ERROR

Definition
Key operation is invalid.

Cause	Countermeasure
Loose connection or breaking of keys	Disconnect and reconnect the AC adapter, and press the ON/OFF key 10 seconds later. If the same error occurs again after the countermeasure is performed, contact our representatives in your region.

4.2.2 More Troubleshooting

This section describes the countermeasures for the troubles that are not indicated by ERROR messages.

● The indicated value fluctuates

When there is a problem with the electrode.

Cause	Countermeasure
There are air bubbles on the electrode.	Shake the electrode to remove the air bubbles.
Plating has separated.	Replace the electrode.

When there is a problem with the instrument

Cause	Countermeasure
There is a motor or other device causing electrical interference.	Measure at a place where no influence from induction is given. Ground all AC-powered equipment
The electrode is not connected correctly.	Connect the electrode correctly.

● The indicated value does not change/No response.

Cause	Countermeasure
Key operation is invalid.	Disconnect and reconnect the AC adapter, and press the ON/OFF key 10 seconds later. If the same error occurs again, seek repairs at contact our representatives in your region.
The electrode connector is not attached correctly.	Turn the power OFF, then turn it back ON again.
The electrode is defective.	Replace the electrode.
The meter is defective.	Contact our representatives in your region.

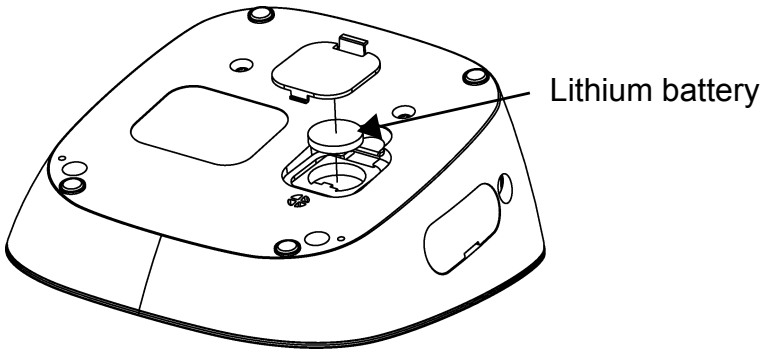
● The details when the AC adapter is disconnected.

Cause	Countermeasure
No lithium battery is set.	Set the lithium battery (CR2032).
The lithium battery runs down.	Replace the lithium battery (CR2032).

NOTE

Refer to " ● Date Setting" P.29, and set date and time.

Lithium battery replacement



● The measured value is blinks.

・The conductivity value is outside the display range (when conductivity value is displayed).

Display range:

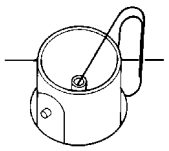
0.00 to 19.99 (when cell constant is 100 m^{-1})

Cause	Countermeasure
The sample is inappropriate.	Use a sample within the measurement range.
The instrument is defective.	Perform the check operation mentioned below.
The meter has not been calibrated or it has been calibrated incorrectly.	Calibrate the meter correctly.

Check operation

Conductivity, salinity, TDS

Disconnect the electrode.
If the displayed measurement value is near 0, the instrument is normal.



● The temperature display blinks. The temperature display is fixed at 25°C.

The temperature measurement value is outside the measurement range.

Measurement range: −30°C to 130°C

Cause	Countermeasure
The temperature of the sample is outside display range.	Check the sample temperature. Adjust it within the measurement range.
The internal thermistor connection of the electrode is broken or shorted.	Check the resistance of the temperature sensor connector. If it is 50 kΩ or more at room temperature, replace the electrode.
The connection of the temperature connector is failed.	Insert the temperature connector firmly.
The instrument is defective.	Contact our representatives in your region.

Cause	Countermeasure
The setting of the temperature calibration is failed.	Initialize the settings referring to " ● Setting Initialization" P.36.

● Printout is not made even when a printer is connected.

Check the following points.

- Is the printer turned ON?
- Is an error occurred in printer?
- Is the printing paper run out or clogged?
- When the test print is made according to the manual, is it done correctly?

Chapter 5 Specifications

5.1 Specifications

● Model information

Item	Description
Brand (pet name)	LAQUA
Series name	Benchtop pH/Water Quality Analyzer
Model	DS-71G
Model description	COND METER

● Measuring object

Measuring object	Item	Description
Temperature	Measuring principle	Thermistor method
	Measuring range	0.0°C to 100.0°C
	Display resolution	0.1°C
	Repeatability	±0.1°C ±1 digit
Conductivity	Measuring principle	2 AC bipolar method
	Measuring range	Cell constant 1 cm^{-1} 0.00 μS/cm to 199.9 mS/cm Cell constant 0.1 cm^{-1} 0.000 μS/cm to 19.99 mS/cm Cell constant 10 cm^{-1} 0.0 μS/cm to 1.999 mS/cm
	Display resolution	0.05% of full scale
	Repeatability	±0.5% ±1 digit of full scale

Measuring object	Item	Description
Resistivity	Measuring principle	Conversion from conductivity value
	Measuring range	Cell constant 1 cm^{-1}: 0.000 kΩ•cm to 19.99 MΩ•cm Cell constant 0.1 cm^{-1}: 0.00 kΩ•cm to 199.9 MΩ•cm Cell constant 10 cm^{-1}: 0.0 Ω•cm to 1.999 MΩ•cm
	Display resolution	0.05% of full scale
	Repeatability	±0.5% ±1 digit of full scale
Salinity	Measuring principle	Conversion from conductivity value
	Measuring range	0.00 PPT to 80.00 PPT (0.000% to 8.000%)
	Display resolution	0.01PPT (0.001%)
TDS	Measuring principle	Conversion from conductivity value
	Measuring range	0.01 mg/L to 100 g/L
	Display resolution	0.01 mg/L

● Functions

・PC USB interface
・Memory number: Up to 999
・Calibration points: Up to 5 points
・Password setting
・Printer connection

5.2 Default Settings

Item	Description	Default value
Common settings	Temperature compensation	Automatic temperature compensation (ATC)
	Manual temperature compensation value	25°C
	Auto power off	OFF
	Sample ID	0000
	Calibration interval	OFF
	Password	OFF
	Auto data memory	OFF
	Auto print	OFF
Conductivity	Unit	S/cm
	Temperature coefficient	2.00%/°C (ON)
	Cell constant	$1.000 \times 1.0\ cm^{-1}$
Salinity	Unit	PPT

5.3 Options

This section lists spare and optional parts for the instrument. These parts are possible through our representatives in your region. Place an order specifying their names, and part numbers.

Part name		Part number	Remarks
AC adapter		3200647413	With 6 plug adapters
Plain paper printer	Printer (USA, 120 V)	3014030146	Printer cable sold separately
	Printer (EU, 230 V)	3014030147	
	Printer cable	3014030148	1.5 m
	Roll paper	3014030149	20 rolls/set
	Ink ribbon	3014030150	5 pcs/set
Serial cable		3014030151	1 m
USB cable		3200373941	
Electrode stand (Standard type)		3200382557	
Electrode stand (Long type)		3200382560	
Stand arm		3200373991	
Sensor holder		3200373961	
X-51 Digital Simulator		—	For pH, mV, ION, DO
X-52 Digital Simulator		—	For COND

HORIBA Advanced Techno
31, Miyanonishi-cho, Kisshoin Minami-ku, Kyoto 601-8306, Japan
http://www.horiba-adt.jp

For any questions regarding this product, please contact your local agency, or inquire from the following website.
http://global.horiba.com/contact_e/index.htm