



Conductivity Benchtop Meters

HI2630

HI2631 with Data Logging

Dear Customer,

Thank you for choosing a Hanna Instruments® product.

Please read this instruction manual carefully before using this instrument as it provides the necessary information for correct use of this instrument, and a precise idea of its versatility.

If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

Visit www.hannainst.com for more information about Hanna Instruments and our products.

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TABLE OF CONTENTS

1. Preliminary Examination	4	8. EC/TDS Calibration	19
1.1. Safety Measures	5	8.1. NaCl% Calibration	21
2. General Description & Intended Use	6	8.2. EC Calibration Messages.....	22
3. System Specifications	7	8.3. EC/TDS GLP Information.....	23
4. Functional & LCD Description	8	8.4. NaCl% GLP Information	24
4.1. Front View	8	9. EC/TDS/Salinity Measurements	26
4.2. Rear View	8	10. Logging (HI2631 Only)	29
4.3. HI763100 Digital Probe.....	9	10.1. Types of Logging.....	29
4.4. Keypad Function.....	10	10.2. View Logged Data.....	31
4.5. LCD Description	11	10.3. Delete Logged Data	32
5. Setup / Installation	12	10.4. PC & Storage Interface.....	34
5.1. Setting Up the Meter.....	12	11. Maintenance	35
5.2. Attaching the Electrode Arm.....	12	11.1. Meter	35
5.3. Powering the Unit	13	11.2. EC Probe.....	35
5.4. Electrode Connection.....	13	11.3. Troubleshooting Guide.....	36
5.5. General Setup	14	12. Meter Error Codes	37
6. Understanding Standard vs Basic Operating Modes	16	13. Accessories	38
7. Meter Setup	17	Certification	39
		Recommendations for Users	39
		Warranty	39

1. PRELIMINARY EXAMINATION

Remove the instrument and accessories from the packaging and examine it carefully.

For further assistance, please contact your local Hanna Instruments office or email us at tech@hannainst.com.

Each device is supplied with:

- [HI763100](#) Digital conductivity electrode
- EC calibration kit
 - 1413 $\mu\text{S}/\text{cm}$ conductivity standard solution (4 sachets)
 - 12880 $\mu\text{S}/\text{cm}$ conductivity standard solution (2 sachets)
 - 5000 $\mu\text{S}/\text{cm}$ conductivity standard solution (2 sachets)
 - Electrode rinse solution (2 sachets)
- [HI764026](#) Electrode holder for [HI2600](#) family
- [HI920018](#) USB-C to USB-C cable
- USB-C power adapter
- Instrument quality certificate
- Probe quality certificate
- Battery safety insert
- Quick reference guide with QR code for instruction manual download

Note: Save all packing material until you are sure the instrument works correctly. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

Ordering information

- [HI2630-01](#) (US power plug)
- [HI2630-02](#) (EU power plug)
- [HI2631-01](#) (US power plug)
- [HI2631-02](#) (EU power plug)

1.1. SAFETY MEASURES

Handling and usage precautions

The unit, although not fragile, can be damaged by improper handling and usage.

- Transport the unit with all cables removed.
- Keep the unit on a stable and even surface, away from contact with liquid.
- Avoid excessive dirt and dust.
- Protect the unit from contact with food, oils, and chemicals.
- If the device becomes wet, gently wipe the exterior with a clean, dry cloth.
- Keep away from direct sunlight.
- Use in a safe place that is appropriate to application requirements.
- Use attachments and accessories specified in this manual only.
- Operate the capacitive keys without applying pressure.
- Do not puncture the screen or drop the unit.
- Do not use the device near heat sources.
- Do not place objects on top of the device.
- Do not insert objects into the ports, spaces around keys, other than the intended cable, USB drive.

Battery Safety

The coin-cell battery is replaceable by a professional service center only.

 WARNING	
<ul style="list-style-type: none"> • INGESTION HAZARD: This product contains a button cell or coin battery. • DEATH or serious injury can occur if digested. • A swallowed button cell or coin battery can cause Internal Chemical Burns in as little as 2 hours. • KEEP new and used batteries OUT OF REACH OF CHILDREN. • Seek immediate medical attention if a battery is suspected to be swallowed or inserted inside any part of the body. 	

- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children.
Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- Call a local poison control center for treatment information.
- Coin-cell battery type CR2032 | Nominal voltage 3.0 V
- Non-rechargeable batteries are not to be recharged.
- Do not force discharge, recharge, disassemble, heat above 85°C (185°F) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- Ensure the batteries are installed correctly according to polarity (+ and -).
- Do not mix old and new batteries, different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
- Remove and immediately recycle or dispose of batteries from equipment not used for an extended period of time according to local regulations.
- Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

2. GENERAL DESCRIPTION & INTENDED USE

HI2630 and HI2631 enable fast, accurate measurements utilizing the Hanna Instruments® HI763100 digital conductivity electrode with an integral temperature sensor.

The probe has a unique serial number and, once connected, is automatically identified by the meter.

The HI2630 measures conductivity (EC) and TDS while HI2631 adds salinity measurement and calibration along with data logging capabilities.

The intuitive design simplifies configuration, calibration, measurement, data logging and transfer (to a USB thumb drive or computer).

HI2630 and HI2631 benchtop meters offer a Basic Mode that streamlines measurement configuration and is useful for routine applications.

Additionally, HI2631 can be used in Standard Operating Mode, where all features and capabilities are enabled.

Large display with capacitive keys

The meter features a 5.5" (14 cm) LCD display. The large display provides a 130 ° wide viewing angle.

2.1.1. Main Features

- Automatic parameter recognition
- Choice of measurement unit:
 - » Conductivity: $\mu\text{S}/\text{cm}$, mS/cm
 - » TDS: ppm (mg/L), g/L
 - » Salinity: NaCl, PSU, g/L (HI2631 only)
- Adjustable resolution for EC measurements
- Basic mode for simplified operation
- Dedicated GLP key
- Internal clock and date
- Logging function (HI2631 only)
- GLP data included with logged data (HI2631 only)
- Simplified data transfer to a PC (HI2631 only)

3. SYSTEM SPECIFICATIONS

HI2630 and HI2631 using HI763100 four-ring conductivity probe

EC	TDS	Salinity*	Temperature
Range			
0.00 to 29.99 $\mu\text{S}/\text{cm}$	0.00 to 14.99 ppm (mg/L)	0.0 to 400.0 % NaCl	—20.0 to 120.0 °C** (—4.0 to 248.0 °F)
30.0 to 299.9 $\mu\text{S}/\text{cm}$	15.0 to 149.9 ppm (mg/L)	2.00 to 42.00 PSU	
300 to 2999 $\mu\text{S}/\text{cm}$	150 to 1499 ppm (mg/L)	0.00 to 80.00 g/L	
3.00 to 29.99 mS/cm	1.50 to 14.99 g/L		
30.0 to 200.0 mS/cm	15.0 to 100.0 g/L		
up to 500.0 mS/cm absolute conductivity***	up to 400.0 g/L (with 0.80 factor) absolute TDS***		
Resolution			
0.01 $\mu\text{S}/\text{cm}$	0.01 ppm	0.1% NaCl	0.1 °C (0.1 °F)
0.1 $\mu\text{S}/\text{cm}$	0.1 ppm	0.01 PSU	
1 $\mu\text{S}/\text{cm}$	1 ppm	0.01 g/L	
0.01 mS/cm	0.01 g/L		
0.1 mS/cm	0.1 g/L		
Accuracy at 25 °C / 77 °F			
±1% of reading (±0.05 $\mu\text{S}/\text{cm}$ or 1 digit, whichever is greater)	±1% of reading (±0.03 ppm or 1 digit, whichever is greater)	±1% of reading	±0.5 °C (0.9 °F)
EC calibration	Cell factor calibration Six standards available <ul style="list-style-type: none"> • 84 $\mu\text{S}/\text{cm}$, 1413 $\mu\text{S}/\text{cm}$ • 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm One point offset: 0.00 $\mu\text{S}/\text{cm}$		
Salinity calibration (% NaCl only)*	Single point with HI7037 standard		
Temperature compensation	<ul style="list-style-type: none"> • Automatic, —5 to 100 °C (23 to 212 °F) • NoTC, can be selected to measure absolute conductivity 		
Conductivity temperature coefficient	0.00 to 6.00 %/°C (EC and TDS only) (1.90 %/°C default)		
TDS factor	0.40 to 0.80 (0.50 default)		
Logging HI2631 only	Up to 1000* (400) records organized in: <ul style="list-style-type: none"> • Manual log-on-demand, maximum 200 logs • Manual log-on-stability, maximum 200 logs • Interval logging, maximum 600 logs (100 lots)* 		

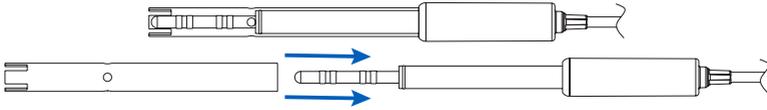
* When operating in Standard Mode only!

** Temperature limits will be reduced to actual probe limits.

*** Absolute conductivity (TDS) is the conductivity value without temperature compensation.

4.3. HI763100 DIGITAL PROBE

The HI763100 is a digital four-ring conductivity probe with integral temperature sensor.



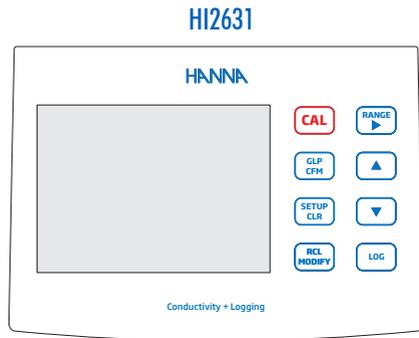
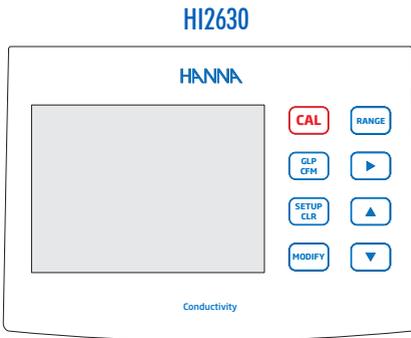
Probe Features

- Direct signal processing for noise-free measurements
- Automatic sensor recognition
- Storage of last calibration data
- Built with materials suitable for use in chemical analysis
- Integral temperature sensor
- 3 mm Jack termination
- Unique serial ID for probe traceability

4.4. KEYPAD FUNCTION

Capacitive keys / Description

CAL	Enter and exit calibration.
GLP CFM	Display GLP calibration information. In setup, confirm change made. During calibration, accept calibration points.
SETUP CLR	Enter/exit setup mode. During calibration, clear previous calibration data. Clear log records in log recall.
▲	Scroll through setup menu items.
▼	Change selection when modifying a parameter in setup.*



MODIFY	Edit option.	RCL MODIFY	View logged records. View percentage of used log memory.
RANGE	Select measurement range.	RANGE (with right arrow)	Select measurement range. Navigate right in setup menu items. View GLP data for a data point in log recall.
▶	Navigate right in setup menu items.	LOG	Log data by manual log-on-demand or manual log-on-stability. Start/stop interval logging.

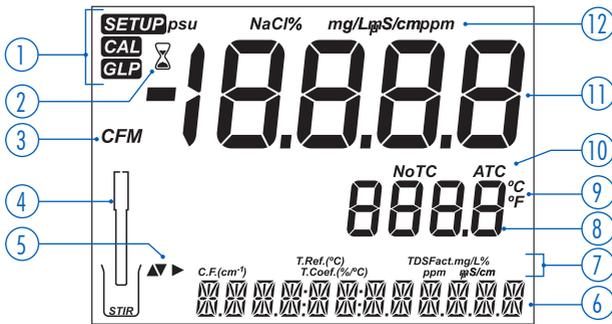
Note: During measurement, use the **▲** **▼** keys to select desired message. Options include date, time, calibration data.

If a measurement error or log status change occurs during measurement, the third line displays a pertinent message.

* To make number changes faster, hold down **▲** or **▼** key.

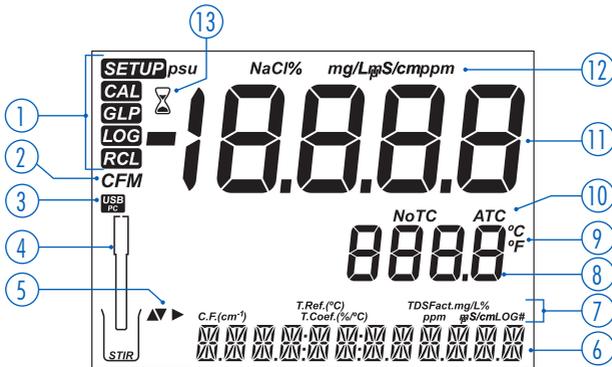
4.5. LCD DESCRIPTION

HI2630



- | | |
|--|--|
| 1. Mode tags | 7. Labels |
| 2. Stability indicator | 8. Second LCD line (temperature measurement) |
| 3. Confirm tag | 9. Temperature units |
| 4. Electrode symbol | 10. Temperature compensation status |
| 5. Arrow tags, displayed when they are available | 11. First LCD line (measurement line) |
| 6. Third LCD line (message area) | 12. Measurement units |

HI2631



- | | |
|--|--|
| 1. Mode tags | 8. Second LCD line (temperature measurement) |
| 2. Confirm tag | 9. Temperature units |
| 3. USB-PC connection status | 10. Temperature compensation status |
| 4. Probe symbol | 11. First LCD line (measurement line) |
| 5. Arrow tags, displayed when they are available | 12. Measurement units |
| 6. Third LCD line (message area) | 13. Stability indicator |
| 7. Labels | |

5. SETUP / INSTALLATION

5.1. SETTING UP THE METER

The main operating modes are setup, calibration, measurement, data logging, and data export. Follow this general outline of steps to get started.

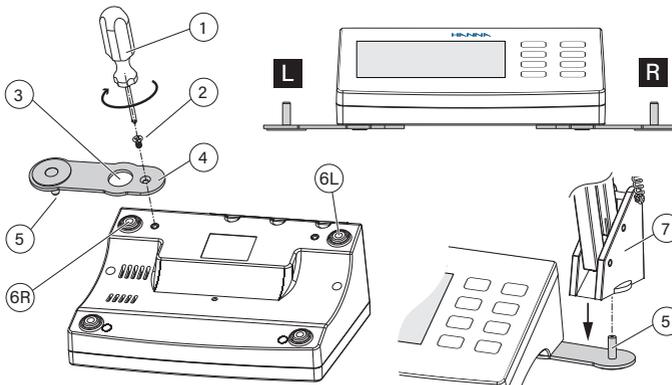
1. Use supplied USB-C to USB-C cable to connect the meter to power.
2. Press the ON/OFF button to turn the meter on.
3. Plug in the probe required for measurement.
4. Configure parameter settings required for the measurement.
5. Calibrate the sensor/probe.

The system is now ready for measurements.

5.2. ATTACHING THE ELECTRODE ARM

Attaching the Electrode Holder Base Plate

- Take the [HI764026](#) electrode arm from the box.
- Identify the metal base plate (4) with the integral pivot pin (5) and the screw (2).
- The plate may be attached to either side of the meter, left (L) or right (R).
- Place the meter face down on a clean, dry surface.
- Align the hole on the base plate (3) over the rubber foot (6R or 6L).
- The pivot pin (5) should be facing downward.
- Use a screwdriver (1) to tighten the screw (2) and attach the base plate to the meter.

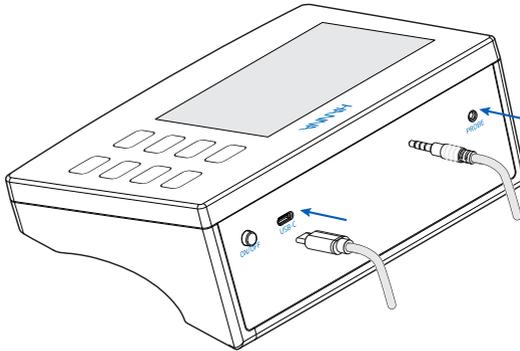


- Position the meter with the display facing up.
- Slide electrode holder (7) over the pivot pin (5).
A “slide in” motion is required to lock the arm into position.

5.3. POWERING THE UNIT

1. Plug one end of the USB-C cable into the USB-C port (HI2631) / POWER port (HI2630) of the meter.
2. Plug the other end of the USB-C cable to the power adapter.
3. Plug the adapter into the wall.
4. Press the black ON/OFF power button.

At start up, the meter briefly displays the initialization screen.



5.4. ELECTRODE CONNECTION

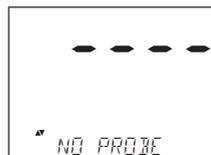
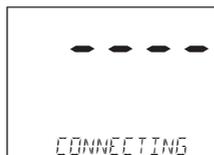
Conductivity electrode attaches to the meter through a jack connector, making attaching and removing the electrode an easy process.

When connected, the electrode is automatically detected.

- Insert the plug into the socket located on the meter's rear panel.
- Make sure the probe is completely connected.

If the probe is recognized, "CONNECTING" message is displayed along with sensor model.

If the probe is not connected or not recognized, "NO PROBE" message is displayed.



5.5. GENERAL SETUP

General settings remain even when no probe is connected.

Note: *The settings are reset to default when meter is restarted.*

- » Tap  key to access configurable options.
- » Use the   keys to navigate options.
- » To modify settings:
 - HI2630 » tap  key
 - HI2631 » tap  key
- » To modify options:
 - HI2630 » use  key
 - HI2631 » use  key
 - Both models » use   keys
- » Tap  key to confirm the change.
- » Tap  key to exit setup.

Setup Items	Description	Options	Default	Basic Mode
USB connection HI2631 only	When connected to a PC, select between logging or data export.	<ul style="list-style-type: none"> • LOG ON METER • EXPORT TO PC 	LOG ON METER	Available
Log HI2631 only	<ul style="list-style-type: none"> • Manual log-on-demand • Manual log-on-stability • Timed interval lot logging 	<ul style="list-style-type: none"> • Manual log • Stability log Fast, Medium, Accurate • Interval log 5, 10, 30 seconds • Interval log 1, 2, 5, 15, 30, 60, 120, 180 minutes 	Interval (5 seconds)	Manual log Stability log (medium)
Set Calibration expiration warning	"EFL TIME" is displayed when set time in this parameter has been exceeded.	<ul style="list-style-type: none"> • 1, 2, 3, 4, 5, 6, 7 days • OFF 	7 days	Not available
Probe specific	Parameters that are specific to a measurement type are inserted here in the SETUP list.			
Set date	Tap   to set date. Tap  to save.	YYYY/MM/DD Date	Set date	Available
Set time	Tap   to set time. Tap  to save.	24 hr:MM:SS Time	Set time	Available

Setup Items	Description	Options	Default	Basic Mode
Set Auto-Off	Automatically turns off when no key press is detected for time set.	5, 10, 30, 60 minutes OFF	10 minutes	Available
Sound	If enabled, a short audible tone is produced for key stroke or calibration confirmation. A longer audible tone is produced for wrong key.	<ul style="list-style-type: none"> • On • Off 	On	Available
Temperature unit	Select degree Celsius or Fahrenheit scale for displayed and logged temperatures.	°C or °F	°C	Available
LCD contrast	Permits modification of the display contrast for various lighting conditions.	1 to 8	3	Available
Message transition	Select how messages are displayed on third LCD line of display.	<ul style="list-style-type: none"> • Word scroll • Letter scroll 	Letter scroll	Available
Reset configuration to default	Tap   and  when prompted to reset parameters.			Available**
Instrument Firmware Probe Firmware	Displays meter firmware version. Use   to switch to probe firmware (if connected) and diagnostic mode for troubleshooting.	View only	Current firmware version	Available
Meter ID Meter SN Probe SN	Meter ID Meter and connected probe serial number. Use   to navigate options.	User selectable meter ID	0000 / Serial Number	Available
CSV file separator	Used to separate columns in the CSV file.	Comma (,) Semicolon (;)	Comma	Available

** It resets with Basic Mode OFF.

6. UNDERSTANDING STANDARD VS BASIC OPERATING MODES

Useful for routine applications, the Basic Mode streamlines measurement configuration.

6.5.1. Standard Mode (HI2631 Only)

The Standard Mode permits:

- Complete configuration of all options for the measurement of conductivity (EC), TDS, salinity.
- Logging of measurement data using manual log-on-demand, manual log-on-stability, or interval logs.
- Export of logged data to a thumb drive or a PC.

6.5.2. Basic Mode

The Basic Mode permits:

- EC and TDS measurements only
- Use of default values for: Cell Factor, Temperature compensation coefficient, and TDS conversion factor
- User-selectable measurement units for TDS
- Logging of measurement data using manual log-on-demand, manual log-on-stability (medium) (HI2631 only)
- Continuous auto-ranging

Differences between Standard and Basic Modes

	Standard Mode	Basic Mode
Measurement	EC TDS Salinity	EC TDS
Setup parameters	Fully selectable	Default values
Log types HI2631 only	Manual log-on-demand Manual log-on-stability (Fast, Medium, Accurate) Interval logging	Manual log-on-demand Manual log-on-stability (Medium)

6.5.3. Measurements Available with the EC Probe

Use  to navigate options.

- Temperature compensated or absolute conductivity measurement
 - » expressed in $\mu\text{S}/\text{cm}$ or mS/cm
- Total Dissolved Solids (TDS) measurement; a calculated measurement derived from the ionized particles in a sample and the conductivity measurement
 - » expressed in mg/L , ppm , or g/L
- Salinity measurement, Standard Mode only
 - » Practical Salinity (PSU)
 - » Natural Seawater (g/L)
 - » NaCl %

7. METER SETUP

- Connect the conductivity probe to the meter.
- Use  to configure EC meter operation.
The EC-specific parameters will be seen inserted into the menu.

Note: When working in Basic Mode the EC parameter list is simplified.

Setup Item	Description	Options	Default	Basic Mode Configuration
Basic mode		Off On	Off	Available
Temperature compensation	Select ATC or No TC to configure absolute conductivity.	No TC ATC	ATC	ATC automatically used
C.F. (cm ⁻¹)	Enter actual Cell Factor value Manual calibration.	0.010 to 9.999 cm ⁻¹	1.000 cm ⁻¹	Automatically determined during calibration
T.Coef. (%/°C)	Relates to the solution being measured at temperatures other than 20 or 25 °C. Used to correct measured conductivity to a reference temperature by applying a fixed factor for linear compensation.	0.00 to 6.00 (%/°C)***	1.90 (%/°C)****	Automatically set to 1.90%/°C
T.Ref. (°C)	Select either 20 °C or 25 °C reference temperature for temperature-corrected conductivity.	20 °C 25 °C	25 °C	Available
TDS conversion factor	Used to mathematically convert conductivity to a TDS value.	0.40 to 0.80	0.50	Automatically set to 0.50
View T.Ref. or T.Coef.	Select whether to display the reference temperature (T.Ref.) or the temperature coefficient (T.Coef.) along with the measurement.	T.Ref.(°C) T.Coef.(%/°C)	T.Ref (°C)	T.Ref. (°C) automatically displayed
EC range	If AUTO is used, the meter automatically finds the correct conductivity range and unit. If a fixed value is used, measurements made outside the ranges are considered out of range. Units remain fixed throughout the measurement.	AUTO 29.99 μS/cm 299.9 μS/cm 2999 μS/cm 29.99 mS/cm 200.0 mS/cm 500.0 mS/cm	AUTO	Meter autoranges

*** Setting to 0.00 is the same as using No TC.

**** Close for natural waters or salt solutions.

Setup Item	Description	Options	Default	Basic Mode Configuration
TDS range*****	<p>If AUTO is used, meter automatically finds the correct TDS measurement range and units.</p> <p>The meter will select the scale with the highest possible resolution, but may change in the middle of a series of measurements both the units and displayed resolution</p> <p>If a fixed value is used, measurements made outside the ranges are considered out of range.</p> <p>Units will remain fixed throughout the measurement.</p>	AUTO 14.99 mg/L 149.9 mg/L 1499 mg/L 14.99 g/L 100.0 g/L 400 g/L	AUTO	Meter autoranges
TDS unit	Select TDS measurement units.	mg/L ppm	ppm	Available
EC salinity scale	Available for salinity measurement in seawater.	PSU NaCl% g/L	NaCl%	Not available

***** The selected range is only active during measurements.

Autoranging is used during calibration.

If a fixed range is selected and reading goes beyond the range limits, the full scale value of that range is displayed blinking. All log data in the CSV files will be displayed in $\mu\text{S}/\text{cm}$.

8. EC/TDS CALIBRATION

The meter allows:

- Conductivity calibration:
 - to calculate offset: 0.00 $\mu\text{S}/\text{cm}$
 - single cell factor calibration: 84 $\mu\text{S}/\text{cm}$, 1413 $\mu\text{S}/\text{cm}$, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, and 111.8 mS/cm
- Salinity calibration using 100 % salinity standard (Standard Mode only).

Note: Conductivity calibration is only available when EC range is configured. Salinity calibration is available in Standard Mode only, when EC salinity scale is configured.

8.5.1. Calibration Guidelines

- Remove plastic bung prior to calibration.
- Clean the probe in distilled water, shake off water droplets, and allow to dry prior to calibration.
- Use a calibration standard with a value that is close to that of the sample.
- Inspect the probe for debris or blockages.
- Ensure the vent holes are completely submerged.
- Tap the probe to remove any air bubbles that may be trapped inside the sleeve.
- Place probe in beaker of solution away from walls or bottom of beaker.
- To minimize cross-contamination, when a two-point calibration is required, use two beakers: one for rinsing the probe and the other for calibration.
- For measurements across a temperature gradient (when water temperature is drastically different from the standards), allow the probe to reach thermal equilibrium before conducting calibrations or making measurements.

8.5.2. Procedure

Connect the probe to the meter. Calibrate the **offset**

1. Suspend the probe in the air.
Allow for the reading to stabilize. The standard value is automatically recognized.
2. After the reading has stabilized, tap . The calibration point is saved.

Cell factor automatic calibration

1. Rinse the probe with calibration solution or deionized water. Shake off excess solution.
2. Submerge the probe in the calibration standard. The sleeve holes must be covered with solution.
3. Center the probe away from the bottom or beaker walls.
4. Raise and lower the probe to refill the center cavity.
5. Tap the probe repeatedly to remove any air bubbles that may be trapped inside the sleeve.
6. Tap  to enter calibration.

The  tag and the recognized standard value are displayed on the third LCD line.

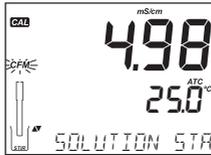
7. If necessary, use   to select a different standard value.

The  indicator along with **STIR** tag are displayed.

"WAIT" message is displayed blinking until the reading is stable.



8. When the reading is stable and close to the selected standard, CFM tag is displayed blinking. "SOLUTION STANDARD" message and solution value value are displayed.



9. Tap **GLP CFM** to confirm calibration. "SAVING" message is displayed. Meter stores calibration value then returns to measurement mode.



Cell factor (cm^{-1}) manual calibration

This option may be used to perform a manual calibration in a custom standard.

1. Rinse the probe with an aliquot of standard. Shake off excess solution.
2. Place the probe in the standard. The sleeve holes must be covered with solution.
3. Tap **SETUP CLR** and use **▲** **▼** to navigate to C.F. (cm^{-1}).
4. Tap **RCL MODIFY**.
5. Use **▲** **▼** to change C.F. (cm^{-1}) until the display reads the custom standard value.
6. Tap **GLP CFM**.

"MANUAL CALIBRATION CLEARS PREVIOUS CALIBRATIONS" message is displayed on the third line LCD.

CAL and CMF tags are displayed blinking.

7. Tap **GLP CFM** to confirm the manual calibration.

Note: GLP and log files indicate "Manual" as standard.

Using this calibration technique will erase any previous calibrations done in CAL.

8.5.3. EC Calibration Standards Temperature Dependence

The meter uses these values and their temperature coefficients during calibration.

°C	°F	HI7030 HI8030 ($\mu\text{S}/\text{cm}$)	HI7031 HI8031 ($\mu\text{S}/\text{cm}$)	HI7033 HI8033 ($\mu\text{S}/\text{cm}$)	HI7034 HI8034 ($\mu\text{S}/\text{cm}$)	HI7035 HI8035 ($\mu\text{S}/\text{cm}$)	HI7039 HI8039 ($\mu\text{S}/\text{cm}$)
0	32	7150	776	64	48300	65400	2760
5	41	8220	896	65	53500	74100	3180
10	50	9330	1020	67	59600	83200	3615
15	59	10480	1147	68	65400	92500	4063
16	60.8	10720	1173	70	67200	94400	4155
17	62.6	10950	1199	71	68500	96300	4245
18	64.4	11190	1225	73	69800	98200	4337
19	66.2	11430	1251	74	71300	100200	4429
20	68	11670	1278	76	72400	102100	4523
21	69.8	11910	1305	78	74000	104000	4617
22	71.6	12150	1332	79	75200	105900	4711
23	73.4	12390	1359	81	76500	107900	4805
24	75.2	12640	1386	82	78300	109800	4902
25	77	12880	1413	84	80000	111800	5000
26	78.8	13130	1440	86	81300	113800	5096
27	80.6	13370	1467	87	83000	115700	5190
28	82.4	13620	1494	89	84900	117700	5286
29	84.2	13870	1521	90	86300	119700	5383
30	86	14120	1548	92	88200	121800	5479
31	87.8	14370	1575	94	90000	123900	5575

8.1. NaCl% CALIBRATION

8.1.1. Preparation

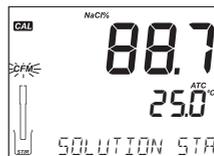
NaCl calibration is a single point calibration at 100.0% NaCl.

Use the [HI7037](#) calibration solution (seawater solution) as a 100% NaCl calibration solution.

- Ensure Basic Mode is off.
- Ensure Salinity Scale is set to NaCl% in setup.
- From measurement mode, tap  to select the Salinity measurement.

8.1.2. Procedure

1. Rinse the probe with [HI7037](#) calibration solution or deionized water.
Shake off excess solution.
2. Submerge the probe in the calibration solution.
The sleeve holes must be completely submersed.
3. Center the probe in the beaker, away from the bottom or beaker walls.
4. Raise and lower the probe to refill the center cavity.
Tap the probe repeatedly to remove any air bubbles that may be trapped inside the sleeve.
5. Tap **CAL** to enter calibration.
The “⌚” indicator along with **STIR** and **CAL** tags will turn on.
NaCl % reading is displayed along with temperature.
“WAIT” message is displayed blinking until the reading is stable.
6. “SOLUTION STANDARD” is displayed when the reading is stable and close to the standard.
CFM tag is displayed blinking.



7. Tap **GLP CFM** to confirm calibration.
“SAVING” message is displayed as the meter stores the calibration values.
Meter then returns to measurement mode.

Note: If a new EC calibration is performed, the NaCl calibration is automatically cleared.

8.2. EC CALIBRATION MESSAGES

- **WRONG STANDARD** scrolled on third LCD line indicates the reading is too far from the expected value.
Calibration can not be confirmed.
» Check calibration solution and/or clean the probe.
- **WRONG STANDARD TEMPERATURE** scrolled on third LCD line indicates that the temperature is out of the 0.0 to 60.0 °C range.
Temperature value is displayed blinking.

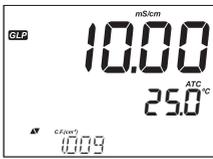
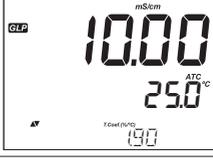


8.3. EC/TDS GLP INFORMATION

GLP is a set of functions that allows storage and retrieval of data regarding electrode status.

EC calibration data is stored automatically after a successful calibration.

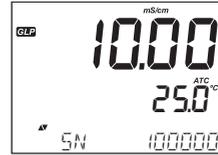
- Tap  from EC measurement mode to view EC calibration data.
The instrument will display the calibration standard and the temperature of the calibrated standard.
- Use   to scroll through the calibration data listed here.

Cell factor in cm^{-1}	
Calibration offset factor (expressed in $\mu\text{S}/\text{cm}$)	
Standard solution and calibration temperature	
Temperature coefficient used during calibration	
Reference temperature	
Last calibration time hh:mm:ss format	

Last calibration date
yyyy.mm.dd format



Probe serial number



Calibration expired warning
EXPIRATION WARNING DISABLED



Calibration due warning
CAL EXPIRES IN X DAYS
Standard mode only



Number of days since calibration expired
CAL EXPIRED X DAYS AGO
Standard mode only



8.4. NaCl% GLP INFORMATION

- Tap  when the instrument is in NaCl% measurement mode.
- Use   to scroll through the calibration data listed here
The instrument will display the calibration temperature and used standard solution.
- Tap  to return to measurement mode.

Cell factor in cm^{-1}



Salinity coefficient	<p>NaCl% GLP 10.00 ATC 25.0 COEF 0.937</p>
Standard solution and calibration temperature	<p>NaCl% GLP 50.5 ATC 25.0 SOL STD 100</p>
Last calibration time hh:mm:ss format	<p>NaCl% GLP 100.5 ATC 25.0 1:38:03</p>
Probe serial number	<p>NaCl% GLP 100.5 ATC 25.0 SN 100000</p>
Last calibration date yyyy.mm.dd format	<p>NaCl% GLP 100.5 ATC 25.0 20.13.06.12</p>
Calibration expired warning EXPIRATION WARNING DISABLED	<p>NaCl% GLP 100.5 ATC 25.0 EXPIRATION W</p>
Calibration due warning CAL EXPIRES IN X DAYS Standard mode only	<p>NaCl% GLP 100.5 ATC 25.0 CAL EXPIRES</p>
Number of days since calibration expired CAL EXPIRED X DAYS AGO Standard mode only	<p>NaCl% GLP 100.5 ATC 25.0 CAL EXPIRED</p>

9. EC/TDS/SALINITY MEASUREMENTS

The HI2630 and HI2631 meter enables conductivity measurements when used with the HI763100 four-ring conductivity probe.

The built-in temperature sensor adjusts the measured conductivity to a reference temperature by applying compensation algorithms.

Tap  to navigate measurement from conductivity to TDS or Salinity.

9.4.1. Conductivity Measurements

- Connect a conductivity probe to the meter.
Probe is automatically recognized.
- Make sure the probe has been recently calibrated and is working correctly.
- Use the HI764026 electrode holder for easy transfer in and out of containers during calibration and for storage.
- Ensure plastic bung is removed prior to taking measurements.
- To limit sample contamination, pour two beakers of calibration standards.
Use one beaker to rinse the sensor and another one for measurement.

Note: Use the same size beaker and immersion depth for samples and calibration standards.

- Ensure the vent holes are completely submerged.
- Tap the probe to remove any air bubbles that may be trapped inside the sleeve.
- If measuring across a temperature gradient, allow the sensor to reach temperature equilibrium.
- Measured conductivity along with the temperature and calibration or range-specific information is displayed.
- Use   to navigate calibration or range-specific information.
- If the reading is out of range, with range set to automatic, the full-scale value i.e. 200.0 mS/cm for ATC or 500.0 mS/cm for absolute conductivity, is displayed blinking.



- Once the reading is stable, record measurement data.

9.4.2. Temperature Compensated Measurements

Temperature-compensation (ATC) and absolute conductivity (NoTC) are configured in setup.

ATC readings

The temperature value is used to automatically compensate an EC or a TDS reading.

With option selected, *ATC* tag is on display.

A temperature coefficient for the sample must be set for temperature compensated measurements.

Default value for natural water samples is 1.90 %/°C.

Temperature Coefficient

To change the temperature coefficient:

- Navigate to setup and select “T.Coef.(%/°C)” (see [7. Meter Setup](#)).
- Use   to display the current temperature coefficient.

The value is displayed along with cell factor used to convert the measured conductance to conductivity, based on cell geometry.

If the temperature reading is out of range, the closest full scale value will be displayed with “°C” blinking.

No TC readings

The temperature value is displayed but not taken into account and the display shows the uncompensated EC or TDS value. When option selected, the **NoTC** tag is displayed.

Note: Default compensation mode is ATC. The compensation is referenced to the selected reference temperature.

9.4.3. TDS Measurements

- Tap  to switch to TDS measuring range.
The TDS reading is displayed along with the temperature reading.
- If the reading is out of range, the full-scale value i.e. 100.0 g/L for ATC or 400.0 g/L for uncompensated TDS, is displayed blinking.



9.4.4. Salinity Measurements (HI2631 Only)

Salinity measurements are not available when operating in Basic Mode!

The electrolytic conductivity (EC) reading from the [HI763100](#) sensor can be used to calculate salinity PSU, salinity ‰, and salinity g/L.

- Tap  twice to navigate from conductivity to the configured salinity scale.
- Configure salinity scale and salinity unit in setup.

Salinity PSU

Salinity PSU relates the ratio of electrical conductivity of a normal seawater sample at 15 °C and 1 atmosphere to a potassium chloride solution (KCl) with a mass of 32.4356 g/Kg water at the same temperature and pressure. Under these conditions the ratio is equal to 1 and $S=35$.

The practical salinity scale may be applied to values 0 through 42.00 psu at temperatures between 0 to 35 °C.

Note: Salinity PSU measurements require conductivity calibration first.



Salinity (%)

In this scale 100 % salinity is equivalent to roughly 10 ‰ solids.

- Enter salinity scale setup and select NaCl % unit.
- Press the  until "NaCl%" is displayed on the LCD.

The NaCl% reading is displayed on the first LCD line and the temperature reading on the second LCD line.

- If the reading is out of range, the full-scale value (400.0 ‰) is displayed blinking. If reading is out of range when logging, "!" is placed next to the measurement unit. Data marked in the CSV files with "!" should not be considered reliable.



Salinity (g/L)

Measurements are based on the 0.00 to 80.00 g/L Natural Seawater Scale from 10 to 31 °C.

It determines the salinity based upon a conductivity ratio of sample to standard seawater at 15 °C and an approximate salinity value of 35 in seawater.

Note: Salinity g/L measurements require conductivity calibration first.

- If the reading is out of the measurement range, highest value possible value is displayed blinking along with a warning message. If reading is out of range when logging, "!" is placed next to the measurement unit. Data marked in the CSV files with "!" should not be considered reliable.



9.4.5. Error Messages

- "PROBE OUT OF SPEC" message indicates EC, TDS, salinity, or temperature has exceeded probe limit. The temperature is displayed blinking.

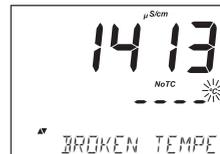
- "120°C" displayed blinking indicates that the temperature has exceeded 120 °C meter specifications.
- When logging, if the EC, TDS, salinity, or temperature exceeds probe limits, "OUT OF SPEC" message is displayed.

Note: The log file will indicate a "°C!" next to the data.

- "BROKEN TEMPERATURE SENSOR" message displayed along with "___" and *NOTE* tag indicates faulty sensor.

Measure unit is displayed blinking, and the log file will indicate "°C!" next to the data.

Absolute conductivity (NoTC) will be marked with an "A" in the CSV files and dashes will appear in the temperature field.



10. LOGGING (HI2631 ONLY)

The instrument holds a maximum number of 1000 records divided as:

- Manual log-on-demand (maximum 200 logs)
- Manual log-on-stability (maximum 200 logs)
- Interval logging (maximum 600 samples organized in 100 lots)

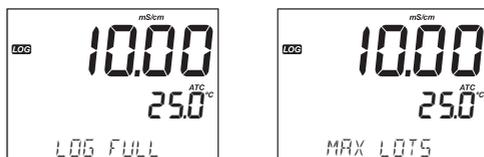
Note: A record is a stored reading and a lot is a group of records.

When operating in Standard Mode users can select between any of the three supported options and can set any of the three stability criteria i.e. fast, medium, accurate.

When operating in Basic Mode users can select between manual log on demand and manual log on stability and can set medium stability criteria only.

Stored data

- Manual log-on-demand and manual log-on-stability are stored in a single lot.
- The maximum number of records that may be stored in a manual or stability lot is 200 records.
- If the log memory is full during logging, the “LOG FULL” message is displayed and logging ceases. The display will return to the measurement screen.
- The maximum number of Interval lots that may be stored is 100. If a 101st lot is attempted, “MAX LOTS” will be displayed and some lots will need to be deleted.



- The lot numbering is up to 999 and restarts if all lot logs are deleted.

10.1. TYPES OF LOGGING

Logging type is configured in setup.

Interval logging

A continuous log is recorded using a user-selected time interval.

Note: Interval logging is not available when operating in Basic Mode.

Manual log-on-demand

Readings are logged each time  is used.

All records are stored in a single manual lot for the measurement type.

New records made on different days are stored in the same manual lot.

Manual log-on-stability

Stability criteria may be set to fast, medium, or accurate.

Note: When operating in Basic Mode only medium stability criteria may be set.

A log on demand is made each time **LOG** is used and the stability criteria is reached.

- In Setup mode, choose log parameter.
- Tap **REL MODIFY** key.
- Use the **RANGE** key to select between Interval, Manual, or Stability.
- When Interval is displayed, use **▲** **▼** to select the setting for the timed interval.
- When Stability is displayed, use **▲** **▼** to select the measurement stability setting.

A complete set of GLP information including date, time, range selection, temperature reading, calibration information and probe serial number is stored with each log made.

10.1.1. Interval Logging

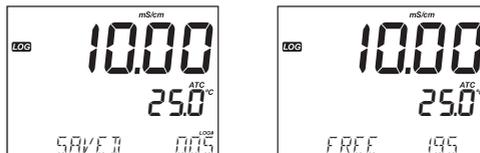
- Configure interval and sampling period in the setup menu.
- Tap **LOG** while the instrument is in measurement mode.
“PLEASE WAIT” message is displayed followed by the number of free spaces.
During active interval logging, lot information is displayed on the third LCD line.
It indicates in which lot the data will be placed and keeps track of the number of logged records taken.
The **LOG** tag is on continuously during active logging.
- Tap **RANGE** during logging to display the number of logs available.
- Tap **LOG** again to stop logging. The “LOG STOPPED” message will be displayed for a few seconds.



Note: If a sensor failure occurs during interval logging, “OUT OF SPEC.” message will alternate with logging information.

10.1.2. Manual Log-On-Demand

- Select Manual in the setup menu.
- Tap **LOG** while the instrument is in measurement mode.
“PLEASE WAIT” message is displayed followed by saved measurement confirmation screen and the number of available (free) spaces. The **LOG** tag is kept on display.



10.1.3. Manual Log-On-Stability

- Select Stability in the setup menu.
- Choose measurement stability criteria in the setup menu.

Note: In Basic Mode, Stability Medium is available only.

- Tap **LOG** while the instrument is in measurement mode.
- “PLEASE WAIT” message is displayed followed by a screen displaying the stability tag, **LOG** tag. “WAITING” message is displayed next.
- Tap **LOG** again while “WAITING” message is on display to stop logging.



- When selected stability criteria has been met, “SAVE IT” message is displayed followed by a screen indicating how much log space is available (**FREE**). The **LOG** tag is kept on display.



10.2. VIEW LOGGED DATA

- Tap **RCL MODIFY** to view all EC log records stored on the meter. The display also indicates the percentage of log memory used. Tap **GLP CFM** to display saved logs.
- If no sensor or probe is connected, tap **RANGE** to select measurement type then **GLP CFM** to display those logs.
- Once a parameter is selected, use **▲** **▼** to select parameter log to view. Option to select from:
 - » Manual log-on-demand lot; Manual log-on-stability lot; Individual Interval logging lots
- If no data was logged for the selected measurement range, the instrument displays “NO MANUAL LOGS”, “NO STABILITY LOGS” messages.



- Tap **GLP CFM** to access lot information and view recorded data.
- Use **▲** **▼** to toggle between different records.
- Tap **RANGE** to display GLP data, including calibration information, date, time.
- Tap **SETUP CLR** then **GLP CFM** when deleting records or lots.
- Tap **RCL MODIFY** to: exit the logging type; exit the parameter selection screen; return to the measurement screen

10.3. DELETE LOGGED DATA

Users can opt between:

- Delete logging type/lot
- Delete records (manual log on demand or manual log on stability)
- Delete all

Procedure

- Tap .
 - Use   to select data to be deleted.
 - Tap .
 - The instrument displays:
 - » "CLEAR MANUAL" if Manual Records was selected
 - » "CLEAR STAB" if Stability Records was selected
 - » If interval lots was selected, the "CLEAR" message is displayed followed by the selected lot, with CFM tag blinking.
 - Use   to select a different lot.
 - Tap .
- "PLEASE WAIT" message is displayed.
- "CLEAR DONE" is displayed for a few seconds after the selected Interval lot is deleted.



10.3.1. Delete Records (Manual Log-on-Demand & Manual Log-on-Stability)

- Tap  when Manual (Stability) is displayed, to enter Manual (Stability) log.
 - Use   to select record to be deleted.
 - Tap .
 - "CLEAR RECORD" message is displayed along with record number and CFM tag blinking.
 - Use   to select another record if necessary.
 - Tap .
- "PLEASE WAIT" then "CLEAR DONE" messages are displayed.

When individual logs are deleted within saved Manual or Stability logs, the logs will renumber, filling in the deleted data but staying in chronological order. See [10.3. Delete Logged Data](#) section to delete all Manual (Stability) logged records.



- Select the Manual (Stability) lot.
- Tap .
- "CLEAR" message is displayed along with "MANUAL" or "STABILITY".
CFM tag is displayed blinking.
- Tap  to confirm deleting selected lot or all records.
- Tap  to exit without deleting.

A lot number is used to identify particular sets of data.

Lot numbers are allocated successively until 100, even if some lots were deleted. The total number of lots that can be saved is 100.

If some are deleted (for example 1-50), fifty additional logs may be stored. These will be numbered 101-150.

The lots are allocated successively (if enough memory space) until 999 is reached.

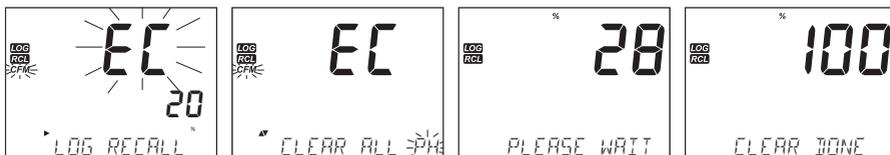
After number 999 is reached, delete all the lot logs to restart numbering.

10.3.2. Delete All

All logs can be deleted in a single clear.

This function will delete all Manual, Stability, and Interval logs for the measurement type selected.

- Tap .
- The EC type will be blinking.
- With measurement type blinking and displayed message reading "LOG RECALL", tap .
- "CLEAR ALL" message and measurement type are displayed.
CFM tag is displayed blinking.
- Tap .
- "PLEASE WAIT" along with percent cleared will be displayed until completed.



Note: If  is wrongly tapped, tap the key again to exit without deleting.

10.4. PC & STORAGE INTERFACE

Meter to PC Transfer

1. Connect the meter to the PC using the supplied USB cable.
2. Power the meter
3. Tap  and select "LOG ON METER".
4. Tap  then use   to change to "EXPERT TO PC".
5. Tap .
The *USB/PC* tag is displayed.
6. Tap  to exit.

The PC detects the USB as a removable drive. Open the drive to view the stored files.

Log files are formatted as Comma Separated Values (*.CSV) and can be opened with any text editor or spreadsheet program.

Notes:

- » *Western Europe (ISO-88859-1) character set and English language are suggested settings.*
- » *Other files may be visible depending upon computer settings. All files stored will appear in this folder.*
- » *Adjust font (column) width appropriately.*
- » *Conductivity measurements are displayed as $\mu\text{S}/\text{cm}$.*

Interval log	Manual log-on-demand	Manual log-on-stability
ECLOT###	ECLOTMAN	ECLOTSTA

All stability logs, regardless of configured stability criteria, are located in the same stability file for that measurement. Click on the desired log to view data.

Notes:

- » *"°C!"* displayed in log data indicates that the probe was used beyond it's operation specifications. Logged data should not be considered reliable!
- » *"°C!!"* displayed in log data indicates a broken temperature sensor. The probe should be replaced. Logged data should not be considered reliable!

11. MAINTENANCE

11.1. METER

The following steps outline the process to ensure users keep the meter clean and disinfected while limiting the risk of damage from unsuitable cleaners.

- Disinfect the screen using commercially available, non-ammonia glass or disinfectant cleaner.
- Apply a small amount of cleaner directly to a microfiber or lint-free disposable cloth.
Make sure the cloth is damp and not wet.
- Wipe the glass screen clean with the cloth. Do not apply cleaner directly to the interface.

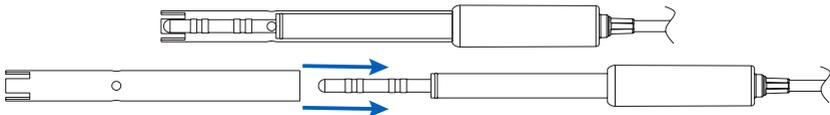
11.2. EC PROBE

Rinse the probe thoroughly as water residue may not be visible.

Cleaning

Dirty or improperly cleaned probes can result in erratic and inaccurate readings.

- Clean off the external sheath with a soft cloth and surfactant solution.
- Rinse the probe under a stream of running tap water to remove salt or minerals.
Jet the tap water stream through the opening to dislodge any debris.
- Only if strictly necessary, carefully remove the outer plastic sheath to disassemble the probe.
Clean off with a warm water (surfactant) mixture and follow with a thorough rinsing with purified water.
Allow pieces to dry and reassemble.



Maintenance

Calibrate the probe with the appropriate standard solution for the intended application.

Storage

- Store the probe dry, after cleaning in distilled water.
- Clean the probe and calibrate after long-term storage.

Note: The insulator used to support the platinum rings is made of glass. Use extreme caution when handling this probe.

11.3. TROUBLESHOOTING GUIDE

The meter gives warning messages:

- when erroneous conditions appear
- while logging (HI2631 only)
- when measured values are outside the expected range
- for invalid temperature values

Note: See notifications area at the bottom of the screen.

The information below provides an explanation of the errors and warnings, and recommended action(s) to be taken.

Symptoms	Problem(s)	Solution(s)
Readings fluctuate up/down (noise)	Probe sleeve not properly inserted Trapped air bubbles	Reinstall the sleeve. Tap the probe to remove air bubbles. Move probe to center of beaker. Verify sleeve's top hole is submerged in solution.
Meter does not accept calibration buffer/standard solution	Damaged probe	Clean the probe. If no results, replace the probe. Verify correct standard is selected.
EC, TDS, Salinity readings displayed blinking	Out of range	Verify no shipping spacer. Recalibrate the probe. Make sure the solution is within specified range. Make sure the range is not locked. Select Auto range.
Meter does not measure temperature	Broken temperature sensor	Replace the probe.
Meter fails to calibrate NaCl	Incorrect EC calibration	Recalibrate the meter. Set cell constant to 1.
At startup meter displays all LCD tags continuously		Contact local Hanna Instruments Office.
CAL "Prod" message at startup.	Meter not factory calibrated	Contact local Hanna Instruments Office.

12. METER ERROR CODES

Error Code	Message	Description
ERR_MSG_FACT_CAL_CORRUPTED	CORRUPT FACTORY CALIBRATION	Factory calibration data is invalid or damaged. Device accuracy cannot be guaranteed.
ERR_MSG_UCAL_CORRUPTED	CORRUPT USER CALIBRATION	User calibration data is corrupt and must be redone.
ERR_MSG_RTC_INTERFACE	RTC INTERFACE	Real-time clock interface communication error.
ERR_MSG_FLASH_INTERFACE	FLASH INTERFACE	Flash memory communication interface error.
ERR_MSG_LCD_INTERFACE	LCD INTERFACE	LCD interface communication error; display may not update correctly.
ERR_MSG_RS232	RS232	RS232 interface serial communication error.
ERR_MSG_RTC	RTC	Real-time clock malfunction or invalid data.
ERR_MSG_FLASH	FLASH	Flash memory read/write failure.
ERR_MSG_FS_FACTORY	FS FACTORY	Corrup factory file system.
ERR_MSG_FS_CORRUPTED	CORRUPT FS	Corrupt main file system. Full flash format needed.
ERR_MSG_DISK_FULL_FACTORY	DISK FACTORY FULL	Factory storage area is full.
ERR_MSG_DISK_FULL	DISK FULL	User storage memory is full.
ERR_MSG_NO_FLASH	NO FLASH	No flash memory detected.
ERR_MSG_UNSUPP_FLASH	FLASH NOT SUPPORTED	Detected flash type is not supported by the firmware.

13. ACCESSORIES

Probes

Ordering Info	Description
HI763100	Digital EC/temperature probe

EC Solutions

Ordering Info	Description
HI70030P	12880 $\mu\text{S}/\text{cm}$ conductivity standard (25 sachets \times 20 mL)
HI70031P	1413 $\mu\text{S}/\text{cm}$ conductivity standard (25 sachets \times 20 mL)
HI70039P	5000 $\mu\text{S}/\text{cm}$ conductivity standard (25 sachets \times 20 mL)
HI7030M	12880 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7031M	1413 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7033M	84 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7034M	80000 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7035M	111800 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7039M	5000 $\mu\text{S}/\text{cm}$ conductivity standard, 230 mL
HI7030L	12880 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7031L	1413 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7033L	84 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7034L	80000 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7035L	111800 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7039L	5000 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL
HI7037L	100% NaCl sea water standard solution, 500 mL
HI8030L	12880 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle
HI8031L	1413 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle
HI8033L	84 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle
HI8034L	80000 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle
HI8035L	111800 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle
HI8039L	5000 $\mu\text{S}/\text{cm}$ conductivity standard, 500 mL FDA approved bottle

Other Accessories

Ordering Info	Description
HI764026	Electrode holder for HI2600 family
HI75115U	115 to 230 VAC to 5 VDC USB-C power adapter, US plug
HI75230E	115 to 230 VAC to 5 VDC USB-C power adapter, European plug

CERTIFICATION

All Hanna[®] instruments conform to the CE European Directives.



RoHS
compliant



Disposal of Electrical & Electronic Equipment. The product should not be treated as household waste. Instead, hand it over to the appropriate collection point for the recycling of electrical and electronic equipment, which will conserve natural resources.

Ensuring proper product disposal prevents potential negative consequences for the environment and human health. For more information, contact your city, your local household waste disposal service, or the place of purchase.

RECOMMENDATIONS FOR USERS

Before using this product, make sure it is entirely suitable for your specific application and for the environment in which it is used. Any variation introduced by the user to the supplied equipment may degrade the meter's performance. For you and the meter's safety do not use or store the meter in hazardous environments.

WARRANTY

The benchtop meter is warranted for two years against defects in workmanship and materials when used for its intended purpose and maintained according to instructions.

Probe is warranted for six months.

This warranty is limited to repair or replacement free of charge.

Damage due to accidents, misuse, tampering, or lack of prescribed maintenance is not covered.

If service is required, contact your local Hanna Instruments[®] office. If under warranty, report the model number, date of purchase, serial number and the nature of the problem. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization (RGA) number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packed for complete protection.