

## HI 8731

### Portable EC, TDS, Temperature Meter



#### WARRANTY

This instrument is guaranteed for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **Electrodes and probes are guaranteed for six months.** This warranty is limited to repair or replacement free of charge. Damages due to accidents, misuse, tampering or lack of prescribed maintenance are not covered. If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. 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 Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

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Dear Customer,  
Thank you for choosing a Hanna product.  
Please read carefully this instruction manual before using the meter. If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com).  
This instrument is in compliance with the CE directives.

#### PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

The meter is supplied with:

- HI 761285 conductivity probe with built-in temperature sensor, DIN connector and 1 m (3.3') cable
- HI 70039 (5000  $\mu\text{S}/\text{cm}$ ) calibration solution sachet
- HI 70032 (1382 ppm) calibration solution sachet
- Battery & instructions

**Note:** Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

#### GENERAL DESCRIPTION

HI 8731 is a complete, versatile and water-tight conductivity meter, that can measure EC and TDS with extended ranges (from 0 to 6000  $\mu\text{S}/\text{cm}$  range and from 0 to 3000 ppm, respectively), and temperature from 0 to 70°C.

The desired measurement mode is easily selectable through a membrane keyboard on the front panel.

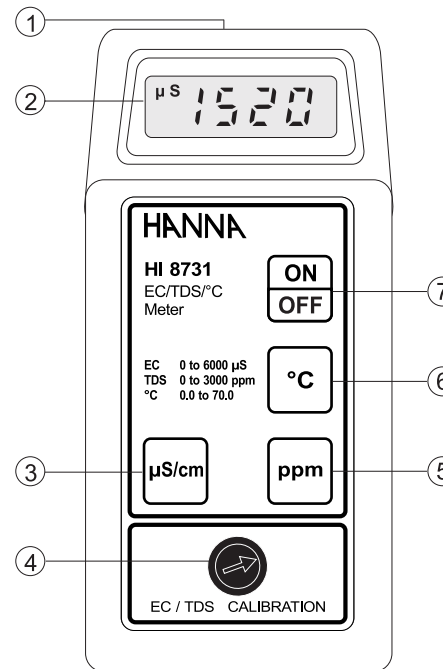
Conductivity measurements are automatically compensated for temperature changes with a fixed coefficient of 2%/°C.

The HI 761285 probe features a built-in temperature sensor, and it has been designed to require little maintenance.

The meter can be calibrated at one point for EC or TDS, while the temperature range is factory calibrated.

Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

#### FUNCTIONAL DESCRIPTION



- 1) DIN connector for probe
- 2) Liquid Crystal Display
- 3)  $\mu\text{S}/\text{cm}$  (EC) range selection key
- 4) EC/TDS calibration knob
- 5) ppm (TDS) selection key
- 6) °C (Temperature) selection key
- 7) ON/OFF key

#### SPECIFICATIONS

Range	EC	0 to 6000 $\mu\text{S}/\text{cm}$
	TDS	0 to 3000 ppm
Temperature	0.0 to 70.0°C (*)	
Resolution	EC	10 $\mu\text{S}/\text{cm}$
	TDS	10 ppm
Temperature	0.1°C	
Accuracy	EC/TDS	$\pm 2\%$ f.s.
	Temperature	$\pm 0.5^\circ\text{C}$
TDS Factor	0.5	
Calibration	EC/TDS	Manual, 1 point, through front knob
	Temperature	Factory calibrated
Probe	HI 761285 (included)	
Temperature	Automatic, 0 to 50°C (32 to 122°F)	
Compensation	with $\beta = 2\%/^\circ\text{C}$	
Environment	0 to 50°C (32 to 122°F); RH max 100%	
Battery Type / Life	1x9V alkaline / approx. 250 hours	
Dimensions	164 x 76 x 45 mm (6.4 x 3.0 x 1.8")	
Weight	250 g (8.8 oz.)	

(\*) If using HI 761285 probe, it is recommended to not exceed 50°C



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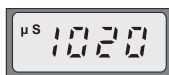
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#### Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which it is used. Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment. Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance. To avoid electrical shock, do not use this instrument when voltage at the measurement surface exceeds 24 Vac or 60 Vdc. To avoid damage or burns, do not perform any measurement in microwave ovens.

## TAKING MEASUREMENTS

- The meter is supplied complete with a 9V battery. Remove the battery compartment cover on the back of the meter and install the battery while paying attention to its polarity.
- Connect the probe to the DIN socket on the top of the meter by aligning the pins with the socket and pushing in the plug.
- Turn the meter on by pressing the ON/OFF key.
- Immerse the tip of the probe into the sample to be tested. If possible, use plastic beakers to minimize any EMC interference.
- Tap the probe lightly on the bottom of the beaker to remove any air bubbles which may be trapped inside.
- Select the desired measurement range, by pressing the corresponding key: " $\mu\text{S}/\text{cm}$ " for EC or "ppm" for TDS.
- Wait a couple of minutes for the temperature sensor to reach thermal equilibrium. The display will then show the measurement automatically temperature compensated for temperature with the appropriate indication: " $\mu\text{S}$ " symbol indicates the meter is in EC mode, while no symbol means that the meter is in TDS mode.



- To read the temperature of the solution, select the temperature mode, by pressing the " $^{\circ}\text{C}$ " key.
- Wait a couple of minutes for the reading to adjust and stabilize. The display will show the temperature value.



**Note:** If the display shows only "E" on the right hand side, the reading is out of range.



**Note:** It is recommended to clean often the probe (see "Probe Maintenance" section for details).

**Note:** After measurements, switch the meter off, clean the probe and store it with the protective cap.

## CALIBRATION

- Turn the meter on.
  - Pour a small quantity of **HI 70039** ( $5000 \mu\text{S}/\text{cm}$ ) EC calibration solution or **HI 70032** (1382 ppm) TDS calibration solution into a clean beaker. If possible, use plastic beakers to minimize any EMC interference.
- Note:** The conversion factor between EC and TDS readings is made by a built-in circuit. Therefore, it is requested to calibrate only one range (EC or TDS), and the other range will be automatically calibrated.
- Immerse the probe in the calibration solution and wait for a couple of minutes for thermal equilibrium to be reached.
  - Tap the probe on the bottom, then shake it, to make sure no air bubbles remain trapped inside the probe.
  - Press the " $\mu\text{S}/\text{cm}$ " (or "ppm") key.
  - Turn the EC/TDS calibration knob until the display shows the calibration solution value.



**Note:** For best accuracy, the probe body should not touch nor stand close to the side walls of the beaker.

## BATTERY REPLACEMENT

This meter is powered by a 9V alkaline battery.

A low battery condition is indicated by a blinking additional decimal point. When the low battery indication appears, only a few hours of working time are left.



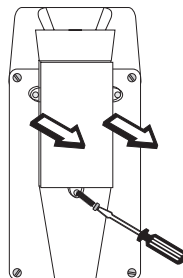
When the battery level is too low to ensure reliable measurements, the meter turns off.

It is recommended to replace the battery immediately.

Battery replacement must only take place in a nonhazardous area using a 9V alkaline battery.

Unscrew the three screws on the rear of the meter, remove the battery compartment cover and replace the 9V battery with a new one, while paying attention to the correct polarity.

Make sure the battery contacts are tight and secure before replacing the cover.



## PROBE MAINTENANCE

### Periodic Maintenance

- Inspect the probe and the cable. The cable used for the connection to the meter must be intact and there must be no points of broken insulation on the cable or cracks on the probe stem or bulb.
- Connector must be perfectly clean and dry. If any scratches or cracks are present, replace the electrode. Rinse off any salt deposits with water.

### Cleaning Procedure

For better accuracy in measurements and to ensure a good performance of the probe, a frequent cleaning is recommended.

- Immerse the tip of the probe in the **HI 7061** cleaning solution for half an hour.

**Note:** For particular dirty (as for example protein, oil or grease), see the "Accessories" section for Hanna specific solutions.

- If a more thorough cleaning is required, brush the metal pins with very fine sandpaper.
- After cleaning, rinse the probe with tap water and recalibrate the instrument. If it is not possible to calibrate, the probe has to be replaced with a new one.

**Note:** For field applications, it is always recommended to keep a spare probe handy. When anomalies are not resolved with simple maintenance, change the probe and recalibrate the meter.

## EC/TDS CONVERSION FACTOR

The TDS value in aqueous solutions is directly proportional to the conductivity. The ratio between the two parameters depends on the solution.

**HI 8731** is provided with a fixed conversion factor, set to 0.5. This means that  $1 \mu\text{S}/\text{cm}$  is equal to 0.5 ppm of TDS.

## ACCESSORIES

- HI 761285** Conductivity probe with built-in temperature sensor, DIN connector and 1 m (3.3') cable
- HI 70032P** 1382 ppm solution, 20 mL sachet (25 pcs)
- HI 7032M** 1382 ppm solution, 230 mL bottle
- HI 7032L** 1382 ppm solution, 500 mL bottle
- HI 70039P**  $5000 \mu\text{S}/\text{cm}$  solution, 20 mL sachet (25 pcs)
- HI 7039M**  $5000 \mu\text{S}/\text{cm}$  solution, 230 mL bottle
- HI 7039L**  $5000 \mu\text{S}/\text{cm}$  solution, 500 mL bottle
- HI 700661P** Cleaning solution, general purpose, 20 mL sachet (25 pcs)
- HI 7061M** Cleaning solution, general purpose, 230 mL
- HI 7061L** Cleaning solution, general purpose, 500 mL
- HI 7073M** Protein cleaning solution, 230 mL bottle
- HI 7073L** Protein cleaning solution, 500 mL bottle
- HI 7074M** Inorganic cleaning solution, 230 mL bottle
- HI 7074L** Inorganic cleaning solution, 500 mL bottle
- HI 7077M** Oil & Fat cleaning solution, 230 mL bottle
- HI 7077L** Oil & Fat cleaning solution, 500 mL bottle

## CE DECLARATION OF CONFORMITY

<b>HANNA</b> Instruments	
<b>CE</b>	
DECLARATION OF CONFORMITY	
We	
Hanna Instruments Italia Srl viale delle Industrie, 12/A 33030 Ronchi di Villafanca - PD ITALY	
herewith certify that the EC/TDS meter:	
<b>HI 8731</b>	
has been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:	
EN 61000-4-1: Electromagnetic Compatibility - Generic Immunity Standard	
IEC 61000-4-2: Electrostatic Discharge	
IEC 61000-4-3: RE Radiated	
EN 61000-4-3: Electromagnetic Compatibility - Generic Emission Standard	
EN 55022: Radiated, Class B	
EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use	
Date of Issue: 5.4.2005	<i>A. Marsilio</i> A. Marsilio - Technical Director On behalf of Hanna Instruments S.r.l.