Instruction Manual

HI 991300 • HI 991301

Waterproof pH/EC/TDS/Temperature Meters with Advanced Features

HANNA instruments
www.hannainst.com

WARRANTY

All Hanna Instruments **meters are warranted for two years** against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **The probes are warranted for a period of six months.**
This warranty is limited to repair or replacement free of charge. Damage 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 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 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.

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

Dear Customer,
Thank you for choosing a Hanna Product.
Please read this instruction manual carefully before using the instrument.
If you need additional technical information, do not hesitate to e-mail us at **tech@hannainst.com**
These instruments are in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is evident, notify your dealer.

Each meter is supplied complete with **HI 1288** probe, batteries, rugged carrying case and instructions.

Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packing together with the supplied accessories.

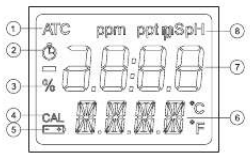
GENERAL DESCRIPTION

HI 991300 and **HI 991301** have been designed to offer you the combination of pH, electro-conductivity, tdal dissolved solids and temperature measurements. To increase precision, two models are available, with different conductivity ranges, for applications from purified to brackish waters.
All operations and settings, including calibration buffers and temperature scale selections, are made through only 2 buttons.
The housing is waterproof and rated for IP67 conditions.
The supplied multi-parameter probe, **HI 1288**, includes pH, EC/TDS and temperature in one convenient, rugged handle. In addition, to ensure against interference from transient electrical noise, a solid-state amplifier is integrated into the probe.
Other user selectable features include different TDS factors from 0.45 to 1.00, and a range of temperature coefficients (β) from 0.0 to 2.4% for greater consistency and reproducibility.

SPECIFICATIONS

	HI 991300	HI991301
Range	0.00 to 14.00 pH 0 to 3999 µS/cm 0 to 2000 ppm (mg/L) 0.0 to 60.0°C / 32.0 to 140.0°F	0.00 to 14.00 pH 0.00 to 20.00 mS/cm 0.00 to 10.00 ppt (g/L) 0.0 to 60.0°C / 32.0 to 140.0°F
Resolution	0.01 pH 1 µS/cm 1 ppm 0.1°C / 0.1°F	0.01 pH 0.01 mS/cm 0.01 ppt 0.1°C / 0.1°F
Accuracy (@20°C/68°F)	±0.01 pH ±2% F.S. (EC/TDS) ±0.5°C / ±1°F	±0.01 pH ±2% F.S. (EC/TDS) ±0.5°C / ±1°F
Typical EMC Deviation	±0.03 pH ±2% F.S. (EC/TDS) ±0.5°C / ±1°F	±0.03 pH ±2% F.S. (EC/TDS) ±0.5°C / ±1°F
pH Calibration	automatic, 1 or 2 point, with 2 sets of memorized buffers (pH 4.01/7.01/10.01 or pH 4.01/6.86/9.18)	
EC/TDS Calibration	automatic, 1 point, at 1382 ppm (CONV=0.5) or 1500 ppm (CONV=0.7) or 1413 µS/cm	at 6.44 ppt (CONV=0.5) or 9.02 ppt (CONV=0.7) or 12.88 mS/cm
Temperature Compensation	pH automatic EC/TDS: automatic with β selectable from 0.0 to 2.4%/°C with 0.1 increments	
TDS Conversion Factor	selectable from 0.45 to 1.00 with 0.01 increments (default 0.50)	
Probe	**HI 1288**, pH/EC/TDS/temperature, with DIN connector and 1 m (3.3') cable (**included**)	
Battery Type / Life	4 x 1.5V AAA / approx. 500 hours of continuous use	
Environment	0 to 50°C (32 to 122°F); RH max 100%	
Dimensions / Weight	150 x 80 x 36 mm (5.9x3.1x1.4") / 210 g (7.4 oz.)	

LCD DESCRIPTION



1. Automatic Temperature Compensation indicator
2. Stabilty indicator
3. Battery percentage
4. Calibration tag
5. Low battery indicator
6. Secondary display with temperature unit
7. Primary display
8. Measuring unit for primary display

Manual abstract:

Please read this instruction manual carefully before using the instrument. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com These instruments are in compliance with the directives. PRELIMINARY EXAMINATION Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If noticeable damage is evident, notify your dealer. Each meter is supllied complete with HI 1288 probe, batteries, rugged carrying case and instructions. Note: Save all packing material until you are sure that the instrument functions correctly. All defective items must be returned in the original packing together with the supplied accessories. SPECIFICATIONS HI 991300 HI991301 0.00 to 14.

00 pH 0.00 to 14.00 pH 0 to 3999 µS/cm 0.00 to 20.00 mS/cm 0 to 2000 ppm (mg/L) 0.

00 to 10.00 ppt (g/L) 0.0 to 60.0°C / 32.0 to 140.

0°F 0.0 to 60.0°C / 32.0 to 140.0°F Resolution 0.01 pH 0.01 pH 1 µS/cm 0.01 mS/cm 1 ppm 0.01 ppt 0.1°C / 0.

1°F 0.1°C / 0.1°F Accuracy ±0.01 pH ±0.01 pH (@20°C/68°F) ±2% F.S. (EC/TDS) ±2% F.S. (EC/TDS) ±0.5°C / ±1°F ±0.

5°C / ±1°F Typical EMC ±0.03 pH ±0.03 pH Deviation ±2% F.S. (EC/TDS) ±2% F.

S. (EC/TDS) ±0.5°C / ±1°F ±0.5°C / ±1°F pH Calibration automatic, 1 or 2 point, with 2 sets of memorized buffers (pH 4.01/7.

01/10.01 or pH 4.01/6.86/9.18) EC/TDS Calibration automatic, 1 point, at 1382 ppm (CONV=0.5) at 6.44 ppt (CONV=0.5) or 1500 ppm (CONV=0.7) or 9.02 ppt (CONV=0.

7) or 1413 µS/cm or 12.88 mS/cm Temperature Compensation pH: automatic EC/TDS: automatic with selectable from 0.0 to 2.4%/°C with 0.1 increments TDS Conversion Factor selectable from 0.45 to 1.00 with 0.01 increments (default 0.50) Probe HI 1288, pH/EC/TDS/temperature, with DIN connector and 1 m (3.3') cable (included) Battery Type / Life 4 x 1.

5V AAA / approx. 500 hours of continuous use Environment 0 to 50°C (32 to 122°F); RH max 100% Dimensions / Weight 150 x 80 x 36 mm (5.9x3.1x1.4") / 210 g (7.

4 oz.) Range w w w . h a n n a i n s t . c o m WARRANTY All Hanna Instruments meters are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The probes are warranted for a period of six months.

This warranty is limited to repair or replacement free of charge. @@@@@@@@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. Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice. GENERAL DESCRIPTION HI 991300 and HI 991301 have been designed to offer you the combination of pH, electro-conductivity, total dissolved solids and temperature measurements. To increase precision, two models are available, with different conductivity ranges, for applications from purified to brackish waters. All operations and settings, including calibration buffers and temperature scale selections, are made through only 2 buttons. The housing is waterproof and rated for IP 67 conditions. The supplied multi-parameter probe, HI 1288, includes pH, EC/TDS and temperature in one convenient, rugged handle. In addition, to ensure against interference from transient electrical noise, a solidstate amplifier is integrated into the probe.

Other user selectable features include different TDS factors from 0.45 to 1.00, and a range of temperature coefficients () from 0.0 to 2.4% for greater consistency and reproducibility. LCD DESCRIPTION 1. Automatic Temperature Compensation indicator 2. Stabilty indicator 3. Battery percentage 4. Calibration tag 5.

Low battery indicator 6. Secondary display with temperature unit 7. Primary display 8. Measuring unit for primary display OPERATIONAL GUIDE · Connect the HI 1288 probe to the DIN socket on the top of the meter by aligning the pins and pushing in the plug. Tighten the nut to ensure a good connection.

Remove the protective cap from the probe before taking any measurement. · Press and hold the MODE button for 2 seconds. All the used segments on the LCD will be visible for a few seconds, followed by a percent indication of the remaining battery life (e.g. % 100 BATT).

· Select the measurement range (pH, EC or TDS) by pressing the SET/HOLD button while in normal measurement mode. The meter will display the pH, EC or TDS value on the primary LCD, while temperature will be simultaneously displayed on the bottom (e.g. pH 5.73 and 22.5 °C). @@TEMP °C). @@@@pH 5.73 hold). Press either button to return to normal mode.

@@"OFF" will appear on the lower part of the display. Release the button. @@@@ · Select the pH mode with the SET/HOLD button. @@@@@@@@TEMP °C). @@ · Press SET/HOLD to change the buffer set. · Press MODE to return to normal pH mode. @@ · Release the button. @@@@pH 4.01 or pH 7.01 or pH 10.

01). The meter will automatically recognize the buffer value. @@@@@@@@@@@@The lower LCD will display "ESC" for 1 second and the meter will return to normal measurement mode. The "CAL" tag on the LCD will disappear and the meter will be reset to the default calibration. EC/TDS MEASUREMENTS & CALIBRATION · Place the probe in the sample to be tested.

Use plastic beakers or containers to minimize any electromagnetic interference. · Select either EC or TDS mode with the SET/HOLD button. · Tap the probe lightly on the bottom of the container to remove air bubbles that may be trapped inside the tip. · Wait for a few minutes for the temperature sensor to reach thermal equilibirium (i.e.

until the stability indicator on the top left of the LCD disappears). · The meter will show the EC or TDS value automatically compensated for temperature, and the temperature of the sample. Selection of the TDS Conversion Factor (CONV) and Temperature Coefficient (BETA) · While in EC or TDS measurement mode, press and hold the MODE button until "TEMP" and the current temperature unit are displayed on the lower LCD (e.g. TEMP °C). · Press the MODE button again to show the current conversion factor (e.g. 0.50 CONV). · Press the SET/HOLD button to change the value.

· Press the MODE button to show the current temperature compensation coefficient (e.g. 2.1 BETA). · Press the SET/HOLD button to change the value. · Press MODE to return to normal operation. EC Calibration · While in the EC measurement mode, press and hold the MODE button until "CAL" is displayed on the lower LCD. @@@@@@@@When the battery level is below 5%, the low battery indicator on the bottom left of the LCD lights up to warn the user.

If the battery level is low enough to cause erroneous reading, the Battery Error Prevention System (BEPS) will automatically turn the meter off. To change the batteries, remove the 4 screws located on the back of the meter and carefully replace the four AAA batteries, while paying attention to their polarity. Replace the back and tighten the screws, while checking that the gasket is in place to ensure a watertight seal. ACCESSORIES HI 1288 pH/conductivity probe with built-in temperature sensor, DIN connector and 1 m (3.3') cable HI 7004M pH 4.01 solution, 230 mL bottle HI 7006M pH 6.86 solution, 230 mL bottle HI 7007M pH 7.
01 solution, 230 mL bottle HI 7009M pH 9.18 solution, 230 mL bottle HI 7010P pH 10.01 solution, 230 mL bottle HI 7030M 12.88 mS/cm solution, 230 mL bottle HI 7031M 1413 µS/cm solution, 230 mL bottle HI 7032M 1382 ppm solution, 230 mL bottle HI 7038M 6.44 ppt solution, 230 mL bottle HI 70442M 1500 ppm solution, 230 mL bottle HI 710007 Blue shockproof rubber boot HI 710008 Orange shockproof rubber boot IST99130X 07/05 .