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You can read the recommendations in the user guide, the technical guide or the installation guide for HANNA INSTRUMENTS HI 96735. You'll find the answers to all your questions on the HANNA INSTRUMENTS HI 96735 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HANNA INSTRUMENTS HI 96735 User guide HANNA INSTRUMENTS HI 96735 Operating instructions HANNA INSTRUMENTS HI 96735 Instructions for use HANNA INSTRUMENTS HI 96735 Instruction manual HANNA INSTRUMENTS HI 96735

INSTRUCTION MANUAL HI 96735 Hardness ISM

Dear Customer,
Thank you for choosing a Hanna product. This manual will provide you with the necessary information for the correct use of the instrument. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

Preliminary examination:

Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occurred during shipment, please notify your dealer.

- Each HI 96735 Ion Selective Meter is supplied complete with:
 - Two Sample Cuvettes and Caps
 - IV Battery
 - Instruction Manual

Note: Save all packing material until you are sure that the instrument works correctly. Any defective items must be returned in its original packing.

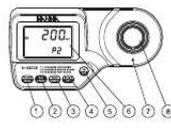
For more details about spare parts and accessories see "Accessories".

Technical specifications:

Range	LR	0 to 250 mg/L
	HR	200 to 500 mg/L
	HR	400 to 750 mg/L
Resolution	LR	1 mg/L from 0 to 100 mg/L
	HR	5 mg/L from 100 to 750 mg/L
Accuracy	LR	±5mg/L = 4% of reading @ 25°C
	HR	±7 mg/L = 3% of reading @ 25°C
	HR	±10 mg/L = 2% of reading @ 25°C
Typical EMC Dev.	±5 mg/L	
Light Source	Light Emitting Diode	
Light Detector	Silicon Photocell with narrow band interference filter 466 nm	
Method	Adaptation of the EPA recommended method 150.1. The reaction between calcium, magnesium and the reagents causes a red-violet tint in the sample	
Environment	0 to 50°C (32 to 122°F), max 95% RH non-condensing	
Battery Type	1 x 9 volt	
Auto-Shut off	After 10' of non-use in measurement mode; after 1 hour of non-use in calibration mode, with last reading memorized.	
Dimensions	192 x 104 x 49 mm (7.6 x 4.1 x 2.7")	
Weight	300 g (13.2 oz.)	



Functional description:



- RANGE/GLP/▲ key: press to change the range or press and hold for three seconds to enter G/LP mode. In calibration mode press to edit the date and time.
- CAL CHECK key: press to perform the validation of the meter, or press and hold for three seconds to enter calibration mode.
- ZERO/TIMER/CFM key: press to zero the meter prior to measurement, to confirm edited values or to confirm factory calibration restore. Press and hold for three seconds to start a programmed countdown prior to measurement.
- READ/▶/UNIT key: In measurement mode, press to make a measurement, or press and hold for three seconds to change the measurement unit. In G/LP mode press to view the next screen.
- ON/OFF key: to turn the meter on and off.
- Liquid Crystal Display (LCD)
- Cuvette holder

DISPLAY ELEMENTS DESCRIPTION:



- The measuring volume (Range, cuvettes, detector), appears during different phases of zero or reading measurement
- Error messages and warnings
- The battery icon indicates the charge state of the battery
- The battery icon appears when an internal check is in progress
- Status messages
- The chronometer appears when the reaction timer is running
- The month, day and date icons appear when a date is displayed
- Four digit main display
- Measuring units
- Four digit secondary display

Errors and warnings:

ON ZERO READING:



Light High: There is too much light to perform a measurement. Please check the preparation of the zero cuvette.



Light Low: There is not enough light to perform a measurement. Please check the preparation of the zero cuvette.



No Light: The instrument cannot adjust the light level. Please check that the sample does not contain any debris.

ON SAMPLE READING:



Inverted cuvettes: The sample and the zero cuvette are inverted.



Zero: A zero reading was not taken. Follow the instructions of the measurement procedure for zeroing the meter.



Under range: A blinking "200" indicates that the sample exceeds less light than the zero reference. Check the procedure and make sure you use the same cuvette for reference (zero) and measurement.



Over Range: A flashing value of the maximum concentration indicates an over range condition. The concentration of the sample is beyond the programmed range dilute the sample and re-use the test.

DURING CALIBRATION PROCEDURE:



Standard Low: The standard reading is less than expected.



Standard High: The standard reading is higher than expected.

OTHER ERRORS AND WARNINGS:



Cap error: Appears when external light enters in the analysis cell. Assure that the cuvette cap is present.



Cooling lamp: The instrument waits for the lamp to cool down.

Battery low: The battery must be replaced soon.



Dead battery: This indicates that the battery is dead and must be replaced. Once this indication is displayed, normal operation of the instrument will be interrupted. Change the battery and reset the meter.

Measurement procedure:



1 Turn the meter on by pressing ON/OFF.



2 When the keypad starts to flash and the LCD displays 'dEAd' and "P2" (low range), the meter is ready. The code that appears on the secondary display is the size of the last selected range. If necessary, press RANGE/GLP/▲ to change range. The blinking "ZERO" indicates that the instrument needs to be zeroed first.



3 Add 0.5 ml of unreacted sample to the cuvette. With the plastic dropper fill the cuvette up to the 10 ml mark adding HI 93735A indicator reagent appropriate to the selected range.



4 Add two drops of HI 93735B buffer reagent. Replace the cap and shake gently to mix.



5 Place the cuvette into the cuvette holder and ensure that the notch on the cap is positioned securely into the groove.



6 Press ZERO/TIMER/CFM for five long, audible and detector icons will appear on the display, depending on the measurement phase.



7 After a few seconds the display will show "0.0". The meter is now zeroed and ready for measurement. Remove the cuvette.



8 Add the content of 1 packet of HI 93735C firing reagent. Replace the cap and shake gently to mix.



9 Replace the cuvette into the holder and ensure that the notch on the cap is positioned securely into the groove.



10 Press and hold ZERO/TIMER/CFM for three seconds and the display will show the countdown prior to measurement or alternatively wait for 2 minutes and press READ/▶/UNIT. In all cases the lamp, cuvette and detector icons will appear on the display, depending on the measurement phase.



11 Press and hold ZERO/TIMER/CFM for three seconds and the display will show the countdown prior to measurement or alternatively wait for 2 minutes and press READ/▶/UNIT. In all cases the lamp, cuvette and detector icons will appear on the display, depending on the measurement phase.



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Manual abstract:

This manual will provide you with the necessary information for the correct use of the instrument. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com. Functional description: Errors and warnings: ON ZERO READING:

Light High: There is too much light to perform a measurement. Please check the preparation of the zero cuvette. Light Low: There is not enough light to perform a measurement. Please check the preparation of the zero cuvette. No Light: The instrument cannot adjust the light level. Please check that the sample does not contain any debris.

Battery low: The battery must be replaced soon. Preliminary examination: Please examine this product carefully. Make sure that the instrument is not damaged. If any damage occurred during shipment, please notify your Dealer. Each HI 96735 Ion Selective Meter is supplied complete with: · Two Sample Cuvettes and Caps · 9V Battery · Instruction Manual Note: Save all packing material until you are sure that the instrument works correctly.

Any defective item must be returned in its original packing. For more details about spare parts and accessories see "Accessories". Dead battery: This indicates that the battery is dead and must be replaced. Once this indication is displayed, normal operation of the instrument will be interrupted. Change the battery and restart the meter.

Measurement procedure: Measurement 2 Technical specifications: Range LR MR HR 0 to 250 mg/L 200 to 500 mg/L 400 to 750 mg/L Resolution Accuracy 1 mg/L from 0 to 100 mg/L 5 mg/L from 100 to 750 mg/L LR ± 5 mg/L $\pm 4\%$ of reading@ 25°C MR ± 7 mg/L $\pm 3\%$ of reading@ 25°C HR ± 10 mg/L $\pm 2\%$ of reading@ 25°C ± 5 mg/L Light Emitting Diode Silicon Photocell with narrow band interference filter 466 nm Adaptation of the EPA recommended method 130.1. The reaction between calcium, magnesium and the reagents causes a red-violet tint in the sample. 0 to 50°C (32 to 122°F); max 95% RH non-condensing 1 x 9 volt After 10' of non-use in measurement mode; after 1 hour of non-use in calibration mode; with last reading reminder. 192 x 104 x 69 mm (7.6 x 4.1 x 2.7") 360 g (12.7 oz.).

1. @@In calibration mode press to edit the date and time. 2. @.@3. @.@@4. READ//UNIT key: In measurement mode, press to make a measurement, or press and hold for three seconds to change the measurement unit. In GLP mode press to view the next screen. 5. ON/OFF key: to turn the meter on and off. 6. Liquid Cristal Display (LCD) 7. Cuvette alignment indicator 8. Cuvette holder DISPLAY ELEMENTS DESCRIPTION: ON SAMPLE READING: Inverted cuvettes: The sample and the zero cuvette are inverted. 3 Zero: A zero reading was not taken. Follow the instructions of the measurement procedure for zeroing the meter.

4 Under range: A blinking "200" indicates that the sample absorbs less light than the zero reference. Check the procedure and make sure you use the same cuvette for reference (zero) and measurement. Over Range: A flashing value of the maximum concentration indicates an over range condition. The concentration of the sample is beyond the programmed range: dilute the sample and re-run the test. DURING CALIBRATION PROCEDURE: Standard Low: The standard reading is less than expected.

8-9 10 mL 5 6 Typical EMC Dev. Light Source Light Detector Method Environment Battery Type Auto-Shut off Dimensions www.hannainst.com Weight 1. The measuring scheme (lamp, cuvette, detector), appears during different phases of zero or reading measurement 2. Error messages and warnings 3. The battery icon indicates the charge state of the battery 4. The hourglass appears when an internal check is in progress 5. Status messages 6. The chronometer appears when the reaction timer is running 7.

The month, day and date icons appear when a date is displayed 8. Four digit main display 9. Measuring units 10. Four digit secondary display Standard High: The standard reading is higher than expected. 10 OTHER ERRORS AND WARNINGS: Cap error: Appears when external light enters in the analysis cell. Assure that the cuvette cap is present. Cooling lamp: The instrument waits for the lamp to cool down. 11 or 1· Turn the meter on by pressing ON/OFF. 2· When the beeper sounds briefly and the LCD displays dashes and "P1" (Low range), "P2" (Medium range) or "P3" (High range), the meter is ready. The code that appears on the secondary display is the one of the last selected range.

If necessary, press RANGE/GLP/ to change range. @.@3· Add 0.5 mL of unreacted sample to the cuvette. @.@4· Add two drops of HI 93735B buffer reagent. Replace the cap and shake gently to mix.

@.@@4· The meter is now zeroed and ready for measurement. Remove the cuvette. 8· Add the content of 1 packet of HI 93735C fixing reagent. Replace the cap and shake gently to mix. @.@@4· The meter is now zeroed and ready for validation. 6· Remove the cuvette. @.@3 1· Turn the meter on by pressing ON/OFF. @.@3· Press and hold CAL CHECK for three seconds to enter calibration mode. The display will show "CAL" during calibration procedure. The 4 blinking "ZERO" asks for instrument zeroing. 4· Place the CAL CHECKTM Standard HI 96735-11 Cuvette A into the cuvette holder and ensure that the notch on the cap 5-6 is positioned securely into the groove. 5· Press ZERO/TIMER/CFM and the lamp, cuvette and detector icons will appear on the display, depending on the measurement phase. 6· After a few seconds the display will show "-0.0-". The meter is now zeroed and ready for calibration.

The blinking "READ" asks for reading calibration standard. 7· Remove the cuvette. 8· Place the CAL CHECKTM Standard HI 96735-11 Cuvette B into the holder and ensure that the notch on the cap is positioned securely into the groove. 9· Press READ//UNIT and the lamp, cuvette and detector icons will appear on the display, 9-10 depending on the measurement phase. 10· The instrument will show for three seconds the CAL CHECKTM standard value. Note: If the display shows "STD HIGH", the standard value was too high. If the display shows "STD LOW", the standard value was too low. Verify that both CAL CHECKTM Standard HI 96735-11 Cuvettes, A and B are free from fingerprints or dirt and that they are inserted cor- 11· Then the date of last calibration (e.g.: "01.

08.2009") appears on the display, or "01.01.2009" if the factory calibration was selected before. In both cases the year number is blinking, ready for date input.

12· Press RANGE/GLP/ to edit the desired year (2009-2099). If the key is kept pressed, the year number is automatically increased. @.@Now the display will show the month blinking. 14· Press RANGE/GLP/ to edit the desired month (01-12).



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@@@Now the display will show the day blinking.

16-Press RANGE/GLP/ to edit the desired day (01-31). @@Note: It is possible to change the editing from day to year and to month by pressing READ/ /UNIT. 17-Press ZERO/TIMER/CFM to save the calibration date. 18-The instrument displays "Stor" for one second and the calibration is saved. 19-The instrument will return automatically to measurement mode by displaying dashes on the LCD. 11-13 FACTORY CALIBRATION RESTORE It is possible to delete the calibration and restore factory calibration. 1· Press RANGE/GLP/ to enter GLP mode. 2· Press READ/ /UNIT to enter in the factory calibration restore screen. The instrument asks for confirmation of user calibration delete. 3· Press ZERO/TIMER/CFM to restore the factory calibration or press RANGE/GLP/ again to abort factory calibration restore.

3-4 3-4 2 Factory Calibration Restore Accessories: REAGENT SETS HI 93735LR Reagents for 100 tests LR (0 to 250 mg/L) HI 93735MR Reagents for 100 tests MR (200 to 500 mg/L) HI 93735HR Reagents for 100 tests HR (400 to 750 mg/L) HI 93735-0 Reagents for 100 tests (0 to 750 mg/L) OTHER ACCESSORIES HI 96735-11 CAL CHECKTM Standard Cuvettes (1 set) HI 721310 9V battery (10 pcs) HI 731318 Tissue for wiping cuvettes (4 pcs) HI 731331 Glass cuvettes (4 pcs) HI 731335 Caps for cuvettes (4 pcs) HI 93703-50 Cuvettes cleaning solution (230 mL). or 14-15 or 4· The instrument briefly indicates "donE" upon restoration of factory calibration prior returning to measurement mode.



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