

## 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](mailto: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
- 9V Battery
- Instruction Manual

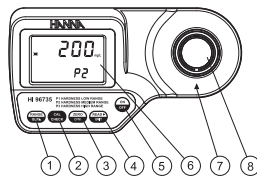
**Note:** Save all packing material until you are sure that the instrument works correctly. Any defective item must be returned in its original packing.

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

### Technical specifications:

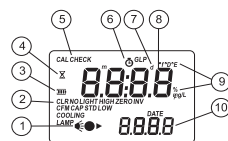
Range	LR	0 to 250 mg/L
	MR	200 to 500 mg/L
	HR	400 to 750 mg/L
Resolution	1 mg/L from 0 to 100 mg/L	
	5 mg/L from 100 to 750 mg/L	
Accuracy	LR	±5mg/L ±4% of reading@ 25°C
	MR	±7 mg/L ±3% of reading@ 25°C
	HR	±10 mg/L ±2% of reading@ 25°C
Typical EMC Dev.	± 5 mg/L	
Light Source	Light Emitting Diode	
Light Detector	Silicon Photocell with narrow band interference filter @ 466 nm	
Method	Adaptation of the EPA recommended method 130.1. 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 reminder.	
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")	
Weight	360 g (12.7 oz.).	

### Functional description:



1. **RANGE/GLP/▲** key: press to change the range or press and hold for three seconds to enter *GLP mode*. In *calibration mode* press to edit the date and time.
2. **CAL CHECK** key: press to perform the validation of the meter, or press and hold for three seconds to enter *calibration mode*.
3. **ZERO/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 preprogrammed countdown prior to measurement.
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 Crystal Display (LCD)
7. Cuvette alignment indicator
8. Cuvette holder

### DISPLAY ELEMENTS DESCRIPTION:



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

### 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 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.



**Standard High:** The standard reading is higher than expected.

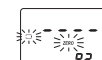
#### OTHER ERRORS AND WARNINGS:



**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.



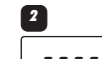
**Battery low:** The battery must be replaced soon.



**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 restart the meter.

### Measurement procedure:

#### Measurement ▼



- 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. 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.



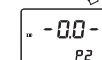
- 4• Add two drops of **HI 93735B** buffer reagent. Replace the cap and shake gently to mix.



- 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/CFM** and the lamp, cuvette 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** fixing 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 **READ/►/UNIT**. In all cases the lamp, cuvette and detector icons will appear on the display, depending on the measurement phase.

