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You can read the recommendations in the user guide, the technical guide or the installation guide for HANNA INSTRUMENTS HI 96828. You'll find the answers to all your questions on the HANNA INSTRUMENTS HI 96828 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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INSTRUCTION MANUAL
HI 96828
Nitrate NR
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 info@hannainst.com.

Preliminary examination:
Please examine this product carefully. Make sure that the instrument is not damaged. If any damage is noted during shipment, please notify your dealer.
Check the HANNA Inc. Safety Manual is supplied complete with:
• Test Sample Container and Caps
• 9V Battery
• Instruction Manual

Note: Some of packing material will give you an idea that the instrument will be correctly. Any defective item must be returned in its original packaging.

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

Technical specifications:

Range	0 to 100 mg/L
Resolution	1 mg/L
Accuracy	± 1 mg/L, ± 1% of reading (≥ 25%)
Typical EMC Dev.	± 1 mg/L
Light Source	LED light source
Light Detector	Photoelectric with narrow band interference filter (λ) 525 nm
Method	Alloyment of the nitrate selective method. The reaction between nitrate nitrite and the reagent causes an increase in the sample.
Environment	0 to 50°C (20 to 122°F); non-condensing
Battery Type	1 x 9 V
Auto-Shut off	After 10' of non-use in measurement mode, after 1 hour of non-use in calibration mode, with last reading available.
Dimensions	192 x 104 x 69 mm (7.6 x 4.1 x 2.7")
Weight	360 g (12.7 oz.)

Functional description:

1. The measuring solution (range, units, direct), appears during different phases of use or reading measurement.
2. Error messages and warnings.
3. The battery icon indicates the charge state of the battery.
4. The temperature appears when an internal check is in progress.
5. Status messages.
6. The measurement appears when the reaction time is ending.
7. The result, also and zero point appear when a data is displayed.
8. Four digit main display.
9. Auxiliary units.
10. Four digit secondary display.

Errors and warnings:

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

NO SAMPLE READING
Err
Inverted electrodes: The sample and the zero counts are inverted.
Err
Zero: A zero reading was not taken. Follow the instructions of the measurement procedure for reading the meter.
Err
Under range or display "00" indicates that the sample absorbs less light than the zero solution. Check the preparation and make sure you use the same cuvette for solutions (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.

READING CALIBRATION PROCEDURE:
Err
Standard Low: The standard reading is less than expected.
Err
Standard High: The standard reading is higher than expected.

OTHER ERRORS AND WARNINGS:
Err
Cap error: Appears when selected light source in the methods call. Assure that the cuvette cap is present.

Measurement procedure:

1. Turn the meter on by pressing ON/OFF.
2. When the sample cuvette holder and the LCD display flashes, the meter is ready. The display "ZERO" indicates that the instrument needs to be zeroed first.
3. Add to the cuvette 10 ml of sample and replace the cap.
4. Place the cuvette into the cuvette holder and ensure that the mark on the top is positioned correctly into the groove.
5. Press ZERO/CEM and the zero, counts and digits times will appear on the display, depending on the measurement phase.
6. After a few seconds the display will show "0.00". A few seconds later the meter will start the measurement. Remove the cuvette.
7. Add the amount of one packet of HI 92320 reagent.
8. Replace the cap and immediately shake vigorously for exactly 30 seconds by moving the cuvette up and down. Continue to mix by moving the cuvette gently and slowly for 30 seconds, while holding one end by index or middle finger. A digital read count but it does not affect the measurement. Time and use of shaking must consistently affect the measurement.
9. Replace the cuvette into the holder and ensure that the mark on the top is positioned correctly into the groove.
10. Press and hold READ/ENTER for three seconds and the display will show the countdown phase measurement in alternative with 5 seconds and 00 seconds and press READ/ENTER. The display "Zero" indicates the end of count-down period. In all cases the zero, counts and digits times will appear on the display, depending on the measurement phase.

Measurement by:

1. Test the meter on by pressing ON/OFF.
2. When the sample cuvette holder and the LCD display flashes, the meter is ready. The display "ZERO" indicates that the instrument needs to be zeroed first.
3. Add to the cuvette 10 ml of sample and replace the cap.
4. Place the cuvette into the cuvette holder and ensure that the mark on the top is positioned correctly into the groove.
5. Press ZERO/CEM and the zero, counts and digits times will appear on the display, depending on the measurement phase.
6. After a few seconds the display will show "0.00". A few seconds later the meter will start the measurement. Remove the cuvette.
7. Add the amount of one packet of HI 92320 reagent.
8. Replace the cap and immediately shake vigorously for exactly 30 seconds by moving the cuvette up and down. Continue to mix by moving the cuvette gently and slowly for 30 seconds, while holding one end by index or middle finger. A digital read count but it does not affect the measurement. Time and use of shaking must consistently affect the measurement.
9. Replace the cuvette into the holder and ensure that the mark on the top is positioned correctly into the groove.
10. Press and hold READ/ENTER for three seconds and the display will show the count-down phase measurement in alternative with 5 seconds and 00 seconds and press READ/ENTER. The display "Zero" indicates the end of count-down period. In all cases the zero, counts and digits times 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.

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. @@@@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. Cooling lamp: The instrument waits for the lamp to cool down. @@Make sure that the instrument is not damaged. If any damage occurred during shipment, please notify your Dealer. @@Any defective item must be returned in its original packing.

@@Once this indication is displayed, normal operation of the instrument will be interrupted. Change the battery and restart the meter. Measurement procedure: Measurement Technical specifications: Range Resolution Accuracy Typical EMC Dev. Light Source Light Detector Method 0 to 100 mg/L 1 mg/L ± 5 mg/L $\pm 5\%$ of reading @ 25°C ± 1 mg/L Tungsten Lamp Silicon Photocell with narrow band interference filter @ 525 nm Adaptation of the cadmium reduction method. The reaction between nitrate-nitrogen and the reagent causes an amber tint in the sample. @@192 x 104 x 69 mm (7.6 x 4.1 x 2.7 ") 360 g (12.7 oz.

). 1. GLP/ key: press to enter GLP mode. In calibration mode press to edit the date and time. 2. @@3. @@4. @@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. @@@@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. @@Assure that the cuvette cap is present. 10 1· Turn the meter on by pressing ON/OFF. 2· When the beeper sounds briefly and the LCD displays dashes, the meter is ready. The blinking "ZERO" indicates that the instrument needs to be zeroed first. 3· Add to the cuvette 10 mL of sample and replace the cap. 4· Place the cuvette into the cuvette holder and ensure that the notch on the cap is positioned securely into the groove. 5· Press ZERO/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 measurement. Remove the cuvette. 7· Add the content of one packet of HI 93728-0 reagent. 8· Replace the cap and immediately shake vigorously for exactly 10 seconds by moving the cuvette up and down. Continue to mix by inverting the cuvette gently and slowly for 50 seconds, while taking care not to induce air bubbles. A deposit could remain but it does not affect the measurement. Time and way of shaking could sensitively affect the measurement. @@@@An audible "beep" indicates the end of countdown period. @@@@Chloride above 100 mg/L (negative interference). Chlorine above 2 mg/L (positive interference).

Copper (it must be absent). Iron (III) (positive interference). Strong oxidizing and reducing substances. Sulfide (it must be absent).

@@@@@@@@@@@@@@@@In both cases the year number is blinking, ready for date input.

12· Press GLP/ to edit the desired year (2009-2099). @@@@Now the display will show the month blinking. 14· Press GLP/ to edit the desired month (01-12).

@@@@@1· Press GLP/ to enter GLP mode. 2 Factory Calibration Restore Accessories: REAGENT SETS HI 93728-01 Reagents for 100 tests HI 93728-03 Reagents for 300 tests OTHER ACCESSORIES HI 96828-11 CAL CHECKTM Standard Cuvettes (1 set) HI 721310 9V battery (10 pcs) HI 731318 Cloth for wiping cuvettes (4 pcs) HI 731331 Glass cuvettes (4 pcs) HI 731335 Caps for cuvettes (4 pcs) HI 93703-50 Cuvette cleaning solution (230 mL). CALIBRATION Note: It is possible to interrupt the calibration procedure at any time by pressing CAL CHECK or ON/OFF keys. 1· Turn the meter on by pressing ON/OFF. 2· When the beeper sounds briefly and the LCD displays dashes, the meter is ready. 3· Press and hold CAL CHECK for three seconds to enter calibration mode. The display will show "CAL" during calibration procedure. The blinking "ZERO" asks for instrument zeroing. 4· Place the CAL CHECKTM Standard HI 96828-11 Cuvette A into the cuvette holder and ensure that the notch on the cap is positioned securely into the groove. @@The instrument asks for confirmation of user calibration delete. @@This warranty is limited to repair or replacement free of charge. @@If service is required, contact your dealer.

@@@@@@@@@@To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase. Recommendations for Users Before using these products, make sure that they are entirely suitable for your specific application and for the environment in which they are used. Operation of these instruments may cause unacceptable interferences to other electronic equipments, this requiring the operator to take all necessary steps to correct interferences. Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance. To avoid damages or burns, do not put the instrument in microwave oven. For yours and the instrument safety do not use or store the instrument in hazardous environments. 14-15 or 4· The instrument briefly indicates "donE" upon restoration of factory calibration prior to returning to measurement mode. Battery management To save the battery, the instrument shuts down after 10 minutes of non-use in measurement mode and after 1 hour of non-use in calibration mode. If a valid measurement was displayed before auto-shut off, the value is displayed when the instrument is switched on. @@@@@@@@@@@@To restart the instrument, the battery must be replaced with a fresh one.

To replace the instrument's battery, follow the steps: · Turn the instrument off by pressing ON/OFF. · Turn the instrument upside down and remove the battery cover by turning it counterclockwise.



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Validation and Calibration procedures Warning: do not validate or calibrate the instrument with standard solutions other than the Hanna CAL CHECKTM Standards, otherwise erroneous results will be obtained. For accurate validation and calibration results, please perform tests at room temperature (18 to 25&de.



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