



# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for HANNA INSTRUMENTS HI 8424NEW. You'll find the answers to all your questions on the HANNA INSTRUMENTS HI 8424NEW 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 8424NEW**  
**User guide HANNA INSTRUMENTS HI 8424NEW**  
**Operating instructions HANNA INSTRUMENTS HI 8424NEW**  
**Instructions for use HANNA INSTRUMENTS HI 8424NEW**  
**Instruction manual HANNA INSTRUMENTS HI 8424NEW**

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#### Instruction Manual

**HI 8424NEW**  
**Portable pH/mV/°C Meter**  
**with Automatic Calibration and**  
**Battery Recharging System**



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**Manual abstract:**

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*Dear Customer, Thank you for choosing a HANNA instruments® product. Please read this instruction manual carefully before using the instrument. This manual will provide you with the necessary information for correct use of the instrument, as well as a precise idea of its versatility. If you need additional technical information, do not hesitate to e-mail us at [tech@hannainst.com](mailto:tech@hannainst.com) or see the back cover for our worldwide contact list. This instrument is in compliance with the directives.*

*WARRANTY HI 8424NEW is guaranteed for two years against defects in workmanship and materials when used for its 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. Damage due to accidents, misuse, tampering or lack of prescribed maintenance is 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 instruments are to be returned to Hanna Instruments, first obtain a Returned Goods Authorization number from the Technical Service department and then send it with shipping costs prepaid. When shipping any instrument, make sure it is properly packed for complete protection.*

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3') cable and BNC Connector 4 25 HI 4430B / HI 4410S Plastic body, gel-filled, combination gold ORP electrode. Use: general purpose. 12 mm Ø.  
5" SPECIFICATIONS HI 4430 120 mm 4.7" "S" VERSION Consult the HANNA General Catalog for a complete and wide selection of electrodes.  
EXTENSION CABLES FOR SCREW-TYPE ELECTRODES (SCREW TO BNC CONNECTOR) HI 7855 SERIES CABLE CONNECTORS CONNECTOR AND  
3.0 mm (0.12") CABLE WITH BNC CONNECT TO SCREW TYPE ELECTRODES CONNECT TO THE BNC SOCKET OF THE METER HI 7855/1 HI 7855/3  
HI 7855/5 HI 7855/10 HI 7855/15 Extension cable 1 m (3.

3') long Extension cable 3 m (9.9') long Extension cable 5 m (16.5') long Extension cable 10 m (33') long Extension cable 15 m (49.5') long OTHER  
ACCESSORIES HI 98501 ChecktempC pocket-size thermometer (50.0 to 150.  
0°C) HI 98502 ChecktempF pocket-size thermometer (58.0 to 302.0°F) HI 710015 Shockproof rubber boot, blue HI 710016 Shockproof rubber boot, orange  
HI 710022 Spare protective case HI 710040 No-contact, inductive battery charger HI 76405 Electrode holder HI 7662 Temperature probe with 1 m (3.3')  
screened cable HI 8427 pH/ORP electrode simulator with 1 m (3.3') coaxial cable and BNC connector HI 931001 pH/ORP electrode simulator with LCD, 1 m  
(3.3') coaxial cable and BNC connector -2.00 to 16.00 pH ±699.9 mV / ±1999 mV -20.0 to 120.

0°C / -4.0 to 248.0°F Resolution 0.01 pH / 0.1 mV / 1 mV / 0.1°C / 0.1°F Accuracy (@20°C/68°F) ±0.01 pH / ±0.2 mV / ±1 mV / ±0.4°C / ±0.  
8°F Typical EMC Deviation ±0.02 pH / ±0.2 mV / ±1 mV / ±0.4°C / ±0.8°F pH Calibration Automatic, 1 or 2 point, with 3 memorized buffer values (pH 4.  
01, 7.01, 10.01) Offset: ±1 pH; Slope: from 75 to 110% Temperature Compensation Automatic, -20 to 120°C (-4 to 248°F) or manual without temperature  
probe Probes (included) HI 1230B double junction, gel-filled pH electrode HI 7662 temperature probe Battery Type 1 x 9V, Ni-MH rechargeable Battery  
Charge Life Approx. 150 hours of continuous use Battery Life Approx. 5 years Auto-off After 20 minutes of non-use or disabled (user-selectable) Environment  
0 to 50°C (32 to 122°F); RH max 100% Dimensions 164 x 76 x 45 mm (6.

5 x 3.0 x 1.8") Weight 180 g (6.3 oz.) Range 24 5 OPERATIONAL GUIDE INITIAL PREPARATION · Remove the electrode protective cap before taking any  
measurements. If the electrode has been left dry, soak the tip in HI 70300 storage solution for a few hours or overnight to reactivate it. · Connect the pH  
electrode to the BNC connector on the top of the instrument. · Connect the temperature probe to the RCA connector. The temperature probe can be used  
independently to take temperature measurements, or in conjunction with the pH electrode to utilize the ATC capability of the meter. · Turn the meter ON by  
pressing the ON/OFF key.

The display shows all the used segments for a few seconds (or as long as the button is held), followed by the percentage indication of the remaining battery  
life, and then enters normal measurement mode. FC 220B Glass body, triple ceramic, single junction, refillable, combination pH electrode. Use: es to mV.  
@@@· Make sure the temperature probe is connected to the meter. @@@@The "HOLD" tag will blink. @@Press HOLD again to  
return to normal mode. · If enabled, keypresses are followed with an acoustic signal. A lower note indicates that the key is not currently active.  
@@@· In this way contamination of the buffers is minimized. @@@@The temperature probe should be located close to the  
pH electrode.

· Press RANGE to display pH measurement. · Press CAL to enter the calibration mode. @@Use: strong acid/alkali. 9.5mm DIA 0.  
37" 12 mm Ø.5" HI 1043 120 mm 4.7" "S" VERSION HI 1053B / HI 1050S Glass body, triple ceramic, conic shape, refillable, combination pH electrode. Use:  
emulsions. 12 mm Ø.

5" HI 1053 120 mm 4.7" · The meter expects a pH 7.01 buffer. 20 9 "S" VERSION · When the buffer value is recognized and the reading is stable, an acoustic  
signal (if enabled) advises the user, the "pH" symbol stops flashing, the hourglass indicator disappears and the "CFM" tag starts blinking to indicate that the  
value can be confirmed. · Press CFM to store the first calibration point. · The meter expects a pH 4.01 or 10.01 buffer. · Rinse and immerse the pH electrode  
and the temperature probe in pH 4.01 or pH 10.

01 buffer (2nd calibration point) and stir gently. · When the buffer value is recognized and the reading is stable, an acoustic signal (if enabled) advises the  
user, the "pH" symbol stops flashing, the hourglass indicator disappears and the "CFM" tag starts blinking to indicate that the value can be confirmed. ·

Press CFM to store the second calibration point. · The meter returns to normal mode. The pH calibration is now complete; "CAL" and the pH tags  
corresponding to the buffers used for calibration are lit on the LCD. Notes: · If the buffer value is not recognized, after 12 seconds the meter will display  
blinking dashes together with the "WRONG" tag. Either the buffer solution is wrong or out of specification and needs to be replaced or the electrode is  
damaged. · The meter will retain the calibration if the battery is removed. · To quit calibration and keep previous data: press CAL after entering the  
calibration mode and before the first point is accepted. · To perform a single-point calibration: press CAL after the first point has been confirmed.

If the temperature probe is not connected and manual temperature compensation is required, follow the procedure below: · Press RANGE to select the  
temperature mode. · Rinse the pH electrode and place it into the pH 7.01 buffer, stir briefly and wait a few minutes to reach thermal equilibrium. 10

ACCESSORIES pH CALIBRATION SOLUTIONS HI 70004P pH 4.01 buffer solution, 20 mL sachet (25 pcs) HI 7004M pH 4.  
01 buffer solution, 230 mL bottle HI 7004L pH 4.01 buffer solution, 500 mL bottle HI 8004L pH 4.01 buffer solution, 500 mL FDA bottle HI 70007P pH 7.01  
buffer solution, 20 mL sachet (25 pcs) HI 7007M pH 7.01 buffer solution, 230 mL bottle HI 7007L pH 7.  
01 buffer solution, 500 mL bottle HI 8007L pH 7.01 buffer solution, 500 mL FDA bottle HI 70010P pH 10.01 buffer solution, 20 mL sachet (25 pcs) HI 7010M  
pH 10.01 buffer solution, 230 mL bottle HI 7010L pH 10.01 buffer solution, 500 mL bottle HI 8010L pH 10.01 buffer solution, 500 mL FDA bottle STORAGE  
& CLEANING SOLUTIONS HI 70300M Storage solution, 230 mL bottle HI 80300M Storage solution, 230 mL FDA bottle HI 70300L Storage solution, 500  
mL bottle HI 80300L Storage solution, 500 mL FDA bottle HI 70000P Electrode rinsing solution, 20 mL sachet (25 pcs).



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) HI 7061M General cleaning solution, 230 mL bottle HI 8061M General cleaning solution, 230 mL FDA bottle HI 7061L General cleaning solution, 500 mL bottle HI 8061L General cleaning solution, 500 mL FDA bottle HI 7073M Protein cleaning solution, 230 mL bottle HI 8073M Protein cleaning solution, 230 mL FDA bottle HI 7073L Protein cleaning solution, 500 mL bottle HI 8073L Protein cleaning solution, 230 mL FDA 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 8077M Oil & Fat cleaning solution, 230 mL FDA bottle HI 7077L Oil & Fat cleaning solution, 500 mL bottle HI 8077L Oil & Fat cleaning solution, 500 mL FDA bottle  
**REFILLING ELECTROLYTE SOLUTIONS** HI 7071 3.5 M KCl+AgCl electrolyte solution, 4 x 30 mL bottle, for single junction electrodes HI 8071 3.5 M KCl+AgCl electrolyte solution, 4 x 30 mL FDA bottle, for single junction electrodes HI 7072 1 M KNO<sub>3</sub> electrolyte solution, 4 x 30 mL bottle 19 For refillable electrodes, if the refill solution (electrolyte) is more than 2.5 cm (1") below the fill hole, add the appropriate electrolyte solution.

**MEASUREMENT** Rinse the electrode tip with distilled water, immerse it (4 cm / 1½") in the sample and stir gently for a few seconds. For a faster response and to avoid cross contamination of the samples, rinse the electrode tip with the solution to be tested, before taking any measurements. **STORAGE PROCEDURE** To minimize clogging and ensure a quick response time, the glass bulb and the junction should always be kept moist. When not in use, store it with a few drops of HI 70300 storage solution in the protective cap. **NEVER STORE THE ELECTRODE IN DISTILLED OR DEIONIZED WATER.** **PERIODIC MAINTENANCE** Inspect electrode and 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 electrode stem or bulb. If any scratches or cracks are present, replace the electrode. Rinse off any salt deposits with water. Connectors must be perfectly clean and dry.

For refillable electrodes: Refill the electrode with fresh electrolyte (see the electrode's specifications to select the correct refilling solution). Allow the electrode to stand upright for 1 hour. Follow the Storage Procedure above. **CLEANING PROCEDURE** Soak in HI 7061 general cleaning solution for approxi- General mately 30 minutes. · Protein Soak in HI 7073 protein cleaning solution for 15 min.

· Inorganic Soak in HI 7074 inorganic cleaning solution for 15 minutes. · Oil/grease Rinse with HI 7077 Oil & Fat cleaning solution for 1 minute. **IMPORTANT:** After performing any of the cleaning procedures, rinse the electrode thoroughly with distilled water and soak it in HI 70300 storage solution for at least 1 hour before taking measurements. · Rinse the temperature probe of a ChecktempC (or ChecktempF) or another accurate thermometer, and place it close to the pH electrode. · Use the UP and DOWN arrow keys to manually adjust the temperature to match the reference thermometer.

· Follow the pH calibration procedure explained in the previous pages. **pH BUFFER TEMPERATURE DEPENDENCE** The temperature has an effect on pH.

The calibration buffer solutions are affected by temperature changes to a lesser degree than normal solutions. During calibration the instrument will automatically calibrate to the pH value corresponding to the measured or set temperature. During calibration the instrument will display the pH buffer value at 25°C. TEMP °C °F 0 32 5 41 10 50 15 59 20 68 25 77 30 86 35 95 40 104 45 113 50 122 55 131 60 140 65 149 70 158 75 167 80 176 85 185 90 194 95 203 4.01 4.01 4.00 4.00 4.

00 4.00 4.01 4.02 4.03 4.04 4.05 4.06 4.07 4.09 4.

11 4.12 4.14 4.16 4.17 4.

19 4.20 11 pH VALUES 7.01 7.13 7.10 7.

07 7.04 7.03 7.01 7.00 6.99 6.98 6.98 6.98 6.98 6.

98 6.99 6.99 7.00 7.01 7.02 7.03 7.04 10.01 10.32 10.

24 10.18 10.12 10.06 10.01 9.

96 9.92 9.88 9.85 9.82 9.

79 9.77 9.76 9.75 9.74 9.73 9.74 9.75 9.76 18 **MENU SELECTION** While in normal measurement mode, press and hold the CFM/SETUP key for about 5 seconds until the meter enters the menu selection mode. The following parameters can be set from the menu: 1.

Auto-off feature: 20 minutes (default setting) or disabled; 2. Acoustic signal: enabled (default setting) or disabled; 3. Temperature unit: °C (default setting) or °F. When entering the menu mode, the auto-off selection is entered. @@@@PREPARATION PROCEDURE Remove the electrode protective cap. **DO NOT BE ALARMED IF ANY SALT DEPOSITS ARE PRESENT.** @@During transport tiny bubbles of air may have formed inside the glass bulb. The electrode cannot function properly under these conditions. These bubbles can be removed by "shaking down" the electrode as you would do with a glass thermometer. If the bulb and/or junction are dry, soak the electrode in HI 70300 storage solution for at least one hour.

17 Press CAL/SELECT to toggle the selection and CFM/SETUP to exit the menu selection mode and return to normal measurement mode. 12 **TROUBLESHOOTING** Symptom Slow response or excessive drift Reading fluctuates up and down (noise) Problem Dirty pH electrode Solution Soak the electrode tip in HI 7061 solution for 30 minutes Soak the electrode tip in warm HI 7082 solution for one hour, then rinse it with distilled water (refill with fresh electrolyte if necessary) mV CALIBRATION HI 8424NEW has been accurately precalibrated for mV range at the factory. For optimum accuracy, it is recommended to recalibrate the meter for mV readings at least once a year. Contact your dealer or the nearest HANNA instruments® Customer Service Center for more information. Clogged/dirty junction or low electrolyte level (refillable electrodes) TEMPERATURE CALIBRATION HI 8424NEW has been accurately precalibrated for temperature at the factory.

For optimum accuracy, it is recommended to recalibrate the meter for temperature at least once a year. Contact your dealer or the nearest HANNA instruments® Customer Service Center for more information. Blinking full scale value Blinking "°C" (or "°F") "WRONG" & blinking dashes Blinking battery symbol Meter shuts off "Clr" message "Er1" and "Er2" messages Reading is out of range Temperature probe is not connected or broken Calibration error Check buffer solution or replace pH electrode Low battery level Recharge or replace battery Auto-off enabled or dead battery Replace battery Loaded default Perform pH calibration pH calibration values EPROM error Contact your dealer or HANNA Service Center Note: For field applications, it is always recommended to keep a conditioned spare electrode handy. When anomalies cannot be resolved with simple maintenance, change the electrode and recalibrate the meter. 16 13 **BATTERY RECHARGE AND REPLACEMENT** The meter displays the remaining battery percentage when turned on.



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When the level is below 5%, the battery symbol on the bottom left of the LCD blinks to indicate a low battery condition. If the battery level is low enough to cause erroneous readings, the Battery Error Prevention System (BEPS) turns the meter off. The 9V battery provided with the instrument can be recharged using the optional HI 710040 battery charger. Plug the recharger and the green LED will turn on, then put the meter on the recharger and the LED will turn to orange, to indicate that the battery is charging. LCD MESSAGES & TROUBLESHOOTING TAGS & SYMBOLS · pH, mV, °C, °F Measurement unit of the selected mode · ATC Indicates Automatic Temperature Compensation (in pH or temperature mode) · MTC Indicates Manual Temperature Compensation (in pH or temperature mode) · HOLD Blinks when in Hold mode. Reading frozen on LCD. The user can scroll through the three ranges by pressing RANGE · CAL In pH calibration mode, or in pH mode when the meter is calibrated · CFM Blinks in pH calibration mode when the meter is ready to confirm a value · WRONG During pH calibration, when the meter does not recognize the pH buffer · % At startup, when showing the percentage of the remaining battery life · In pH mode, when meter was calibrated with pH 7.01 buffer · In pH mode, when meter was calibrated with pH 4.01 buffer · In pH mode, when meter was calibrated with pH 10.01 buffer · (hourglass symbol): When reading is not stable · (battery symbol): At startup, if remaining battery life is below 5% It will take approx.

14 hours to completely charge the battery. The supplied 9V Ni-MH rechargeable battery can last for about 5 years. When the battery needs to be replaced, remove the cover on the rear of the meter and replace the rundown battery with a new one, while paying attention to the correct polarity. Reattach the back making sure that the gasket is in place and tighten the 3 screws to ensure a good seal. Replacement should take place in a non-hazardous area using a 9V Ni-MH rechargeable battery. Note: The meter can also be powered with a normal 9V alkaline battery. NEVER USE THE HI 710040 CHARGER WITH NON-RECHARGEABLE BATTERY. Note: Dispose of the Ni-MH battery according to local regulations. 14 15 .



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