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You can read the recommendations in the user guide, the technical guide or the installation guide for HANNA INSTRUMENTS HI 9147. You'll find the answers to all your questions on the HANNA INSTRUMENTS HI 9147 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

Oxy-Check

HI 9147
Portable, Water-resistant
Dissolved Oxygen Meter
with
Galvanic Probe
and
Battery Recharging System



WARRANTY

HI 9147 meters are guaranteed for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The probes are guaranteed for one year. This warranty is limited to repair or replacement free of charge. Damages due to accident, 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 failure. 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 carefully this instruction manual before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com. This instrument is 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 there is any damage, notify your Dealer. The meter is supplied complete with:

- D.O. probe, fixed:
 - HI 76409/4 with 4 m cable for HI 9147-04
 - HI 76409/10 with 10 m cable for HI 9147-10
- Spare membranes (HI 76409A/P) with O-rings, 5 pcs.
- HI 70425 electrolyte solution (30 ml bottle)
- HI 710016 shockproof rubber boot
- 9V Ni-MH rechargeable battery
- Screwdriver and instructions.

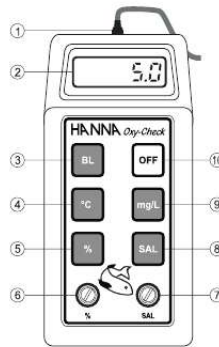
Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

GENERAL DESCRIPTION

Oxycheck is a water-resistant Dissolved Oxygen meter with manual calibration, automatic temperature compensation (ATC), salinity compensation and direct probe. The instrument is equipped with an inductive system for battery recharge, with no external contact, to ensure a watertight seal. Dissolved Oxygen is indicated in mg/L (ppm) or in % of saturation. The temperature can be measured in the range from -5 to 50 °C. The Dissolved Oxygen readings are automatically compensated for the temperature effects on the oxygen solubility and membrane permeability. Moreover, the salinity compensation feature allows determination of Dissolved Oxygen even in salty waters. The meters is housed in a rugged water-resistant case for maximum protection in the field as well as in the laboratory. The D.O. probe is provided with a membrane covering the galvanic sensors and a built-in thermistor for temperature measurement and compensation. The thin permeable membrane isolates the sensor elements from the testing solution, but allows oxygen to enter, from which the oxygen concentration is determined. Two models are available:

- HI 9147-04 with HI 76409/4 probe (4 m cable)
- HI 9147-10 with HI 76409/10 probe (10 m cable)

FUNCTIONAL DESCRIPTION



- 1) HI 76409/4 or HI 76409/10 galvanic D.O. probe (fixed)
- 2) Liquid Crystal Display
- 3) BL key, turn the backlight ON (as long as it is pressed)
- 4) °C key, display temperature measurement
- 5) % key, display O₂ measurement in % of saturation
- 6) % trimmer, for calibration adjustment
- 7) SAL trimmer, for setting salinity compensation value
- 8) SAL key, display setting of salinity factor (active only in mg/L measurement mode)
- 9) mg/L key, display O₂ measurement in mg/L (ppm)
- 10) OFF key, turn the instrument OFF

Note: To turn the instrument ON, press any of the measurement keys [°C, %, mg/L]

SPECIFICATIONS

Range	0.0 to 50.0 mg/L (ppm) O ₂ , 0 to 600 % O ₂ , -5.0 to 50.0 °C
Resolution	0.1 mg/L or 1% (O ₂) / 0.1 °C
Accuracy	±1% of reading (O ₂) / ±0.2 °C
Typical EMC Deviation	±2% of reading (O ₂) / ±1 °C
Calibration	Manual, in saturated air
Temperature Compensation	Automatic, from -5 to 50 °C (23 to 122 °F)
Salinity Compensation	0 to 51 g/L (resolution 1 g/L)
Probe (fixed)	HI 76409/4 with 4 m cable or HI 76409/10 with 10 m cable
Battery Type	1 x 9V Ni-MH, rechargeable
Battery Charge Life	200 hours of use (BL off)
Battery Life	Approx. 5 years
Auto-off	After approx. 6 minutes
Environment	0 to 50 °C (32 to 122 °F); max 95% RH non-condensing
Dimensions	164 x 76 x 45 mm (6.5 x 3.0 x 1.8")
Weight (with HI 76409/4 probe)	511 g (1.12 lb)

ACCESSORIES

- HI 76409/4* Galvanic D.O. probe with built-in temperature sensor and 4 m cable
- HI 76409/10* Galvanic D.O. probe with built-in temperature sensor and 10 m cable
- HI 76409-0 Protective sleeve for HI 76409 probes series
- HI 76409A/P Membrane for HI 76409 probes series, 5 pcs.
- HI 70425 Electrolyte solution, 30 ml bottle
- HI 710015 Shockproof rubber boot, blue color
- HI 710016 Shockproof rubber boot, orange color
- HI 731326 Calibration screwdriver (20 pcs)
- HI 710040 Battery recharger

* To be substituted by authorized technical personnel only

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Manual abstract:

Please read carefully this instruction manual before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com. This instrument is in compliance with the CE directives. FUNCTIONAL DESCRIPTION SPECIFICATIONS Range 0.0 to 50.0 mg/L (ppm) O2 0 to 600 % O2 -5.0 to 50.0°C Resolution 0.1 mg/L or 1% (O2) / 0.

1°C Accuracy ±1% of reading (O2) / ±0.2°C Typical EMC Deviation ±2% of reading (O2) / ±1°C Calibration Manual, in saturated air Temperature Compensation Automatic, from -5 to 50°C (23 to 122°F) Salinity Compensation 0 to 51 g/L (resolution 1 g/L) Probe (fixed) HI 76409/4 with 4 m cable or HI 76409/10 with 10 m cable Battery Type 1 x 9V Ni-MH, rechargeable Battery Charge Life 200 hours of use (BL off) Battery Life Approx. 5 years Auto-off After approx. 6 minutes Environment 0 to 50°C (32 to 122°F); max 95% RH non-condensing Dimensions 164 x 76 x 45 mm (6.5 x 3.

0 x 1.8") Weight (with HI 76409/4 probe) 511 g (1.12 lb.) HI 9147 Portable, Water-resistant Dissolved Oxygen Meter with Galvanic Probe and Battery Recharging System PRELIMINARY EXAMINATION Remove the instrument from the packing material and examine it carefully to make sure that no damage has occurred during shipment. If there is any damage, notify your Dealer.

The meter is supplied complete with · D.O. probe, fixed: HI 76409/4 with 4 m cable for HI 9147-04 HI 76409/10 with 10 m cable for HI 9147-10 · Spare membranes (HI 76409A/P) with O-rings, 5 pcs. · HI 7042S electrolyte solution (30 ml bottle) · HI 710016 shockproof rubber boot · 9V Ni-MH rechargeable battery · Screwdriver and instructions. Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing. www.hannainst.com WARRANTY HI 9147 meters are guaranteed for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The probes are guaranteed for one year.

This warranty is limited to repair or replacement free of charge. Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered. If service is required, contact the dealer from whom you purchased the instrument. @@@@The instrument is equipped with an inductive system for battery recharge, with no external contact, to ensure a watertight seal. Dissolved Oxygen is indicated in mg/L (ppm) or in % of saturation. The temperature can be measured in the range from -5 to 50°C. The Dissolved Oxygen readings are automatically compensated for the temperature effects on the oxygen solubility and membrane permeability. Moreover, the salinity compensation feature allows determination of Dissolved Oxygen even in salty waters.

The meter is housed in a rugged water-resistant case for maximum protection in the field as well as in the laboratory. The D.

O. probe is provided with a membrane covering the galvanic sensors and a built-in thermistor for temperature measurement and compensation. The thin permeable membrane isolates the sensor elements from the testing solution, but allows oxygen to enter. Oxygen that passes through the membrane causes a current flow, from which the oxygen concentration is determined. Two models are available: · HI 9147-04 with HI 76409/4 probe (4 m cable) · HI 9147-10 with HI 76409/10 probe (10 m cable) HI 76409/4 or HI 76409/10 galvanic D.

O. probe (fixed) Liquid Crystal Display BL key, turn the backlight ON (as long as it is pressed) °C key, display temperature measurement % key, display O2 measurement in % of saturation % trimmer, for calibration adjustment SAL trimmer, for setting salinity compensation value SAL key, display setting of salinity factor (active only in mg/L measurement mode) 9) mg/L key, display O2 measurement in mg/L (ppm) 10) OFF key, turn the instrument OFF Note: To turn the instrument ON, press any of the measurement keys (°C, %, mg/L) 1) 2) 3) 4) 5) 6) 7) 8) ACCESSORIES HI 76409/4* Galvanic D.O. probe with built-in temperature sensor and 4 m cable HI 76409/10* Galvanic D.O.

probe with built-in temperature sensor and 10 m cable HI 76409-0 Protective sleeve for HI 76409 probes series HI 76409A/P Membrane for HI 76409 probes series, 5 pcs. HI 7042S Electrolyte solution, 30 ml bottle HI 710015 Shockproof rubber boot, blue color HI 710016 Shockproof rubber boot, orange color HI 731326 Calibration screwdriver (20 pcs) HI 710040 Battery recharger * To be substituted by authorized technical personnel only Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice. IST9147R2 05/05 PROBE PREPARATION All Hanna D.O. probes are shipped dry. To hydrate the probe and prepare it for use proceed as follows: 1. Remove the black & red plastic cap. This cap is used for shipping purposes only and can be thrown away. 2. Insert the supplied O-ring in the membrane (see figure).

CALIBRATION Calibration is a very simple 1-point procedure, performed in air. Ensure the probe is ready for measurements, i.e. @@@@3 mm) in the white cap supplied with the membrane. Insert the probe in the cap and calibrate. @@@@Enter the mg/L mode by pressing the corresponding key. @@@@Enter the mg/L mode by pressing the corresponding key. @@@@See below table for reference: 3. @@@@Refill with clean electrolyte. @@@@The D.

O. @@@@During field measurements, this condition may be achieved by manually agitating the probe into the solution being measured. Accurate readings are not possible in still water. During laboratory operations, the use of a magnetic stirrer is recommended. Note: For some particular applications, such as fish farming, the membrane can be sterilized with stabilized iodine (20 to 50 ppm), typically used for this purpose.

Note: For use in harsh environments, it is recommended to protect the membrane with the optional HI 76409-0 sleeve. The response time will slightly slow down. PROBE & MEMBRANE MAINTENANCE For a top performance probe, it is recommended to replace the membrane every 2 months and the electrolyte once a month. Proceed as follows: · Unscrew the membrane by turning it counterclockwise. · Rinse the supplied spare membrane (HI 76409A) with some electrolyte solution while shaking it gently.

Refill with clean electrolyte. · @@@@Some electrolyte will overflow. If any deposit scales the sensors, gently brush the sensor surface with the supplied scouring pad, while paying attention to not damage the plastic body. It will take approx. 14 hours to completely charge the battery. The supplied 9V Ni-MH rechargeable battery can last for approximately 5 years. @@@@Never use the HI 710040 recharger with non-rechargeable battery. @@@@Some electrolyte will overflow. Recommendations for Users Before using this product, make sure that it is entirely suitable for the environment in which it is used.



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Operation of this instrument in residential area could cause unacceptable interference to radio and TV equipment, requiring the operator to take all necessary steps to correct interference.

Any variation introduced by the user to the supplied equipment may degrade the instruments' EMC performance. To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24 Vac or 60 Vdc. To avoid damage or burns, do not perform any measurement in microwave ovens. .



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