Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for a correct operation. 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. These instruments are in compliance with the EC directives.

WARRANTY
EC and TDS GROCHEK are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. The probes are warranted for a period of six months. 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.

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Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

Preliminary Examination
Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

The meters are supplied with:
• HI 7632 probe (HI 983302N)
• HI 7634 probe (HI 983301N and HI 983301N/5)
• 1413 µS/cm calibration solution (20 mL) for HI 983302N
• 1500 ppm calibration solution (20 mL) for HI 983301N
• 1382 ppm calibration solution (20 mL) for HI 983301N/5
• Calibration screwdriver
• 12 Vdc power adapter 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

EC and TDS GROCHEK are instruments specially designed to meet the needs of growers in greenhouses hydroponic applications. They are equipped with a large display for an easy reading also from distance. You can simply hang the meter right above the sample to be tested for continuous measurement and the unit will run without interruption on 12 Vdc power supply. The housing has been completely sealed against vapors and humidity.

The meters are supplied with a probe that automatically compensates for the temperature variation. The probe is easy to clean and requires little maintenance.

Measurements are highly accurate and the meters can be calibrated at one point. In addition, the two TDS GROCHEK use a specially devised formula which perfectly reflects the needs of growers. In fact, the TDS factor of the HI 983301N model is 0.7 while for the HI 983301N/5 is 0.5.

Specifications

**EC GROCHEK – HI 983302N**

- **Range**: 0.00 to 9.99 mS/cm
- **Resolution**: 0.01 mS/cm
- **Accuracy (@ 25°C/77°F)**: ±2% f.s.
- **Typical EMC Deviation**: ±2% f.s.
- **Temp. Compensation**: Automatic
- **5 to 50°C (41 to 122°F)**
- **Calibration**: Manual with one trimmer
- **Probe**: HI 7632 (fixed)
- **Casing**: IP54
- **Power supply**: 12 Vdc adapter (included)
- **Dimensions**: 86 x 110 x 43 mm (3.4 x 4.3 x 1.7”)
- **Weight**: 215 g (7.6 oz)

**TDS GROCHEK – HI 983301N & HI 983301N/5**

- **Range**: 0 to 1990 mg/L (ppm)
- **Resolution**: 10 mg/L (ppm)
- **Accuracy (@ 25°C/77°F)**: ±2% f.s.
- **Typical EMC Deviation**: ±2% f.s.
- **Temp. Compensation**: Automatic
- **5 to 50°C (41 to 122°F)**
- **Calibration**: Manual with one trimmer
- **Probe**: HI 7634 (fixed)
- **Casing**: IP54
- **Power supply**: 12 Vdc adapter (included)
- **Dimensions**: 86 x 110 x 43 mm (3.4 x 4.3 x 1.7”)
- **Weight**: 215 g (7.6 oz)
**OPERATIONAL GUIDE**

**TAKING MEASUREMENTS**

- Turn the meter on by connecting the 12 Vdc power adapter to the meter and to the mains.
- Immerse the tip (4 cm / 1½") of the probe in the sample.

**Note:** In order not to affect the accuracy of measurements, it is important that the probe body does not touch nor stand close to the side walls of the vessel. The tip may lay on the bottom of the beaker.

- The LCD will show the EC or TDS value. Any initial variation of reading may be due to temperature compensation and to the fact that the probe is adjusting itself to the new sample. Allow the reading to stabilize and the meter will start continuous monitoring.

**PROBE MAINTENANCE**

To minimize clogging and provide longer life for the probe, it is recommended to clean it often or at least once a month.

- Immerse the tip of the probe in HI 7061 cleaning solution for one hour or clean it with detergents used to wash irrigation pipelines and fertilizer vessels.
- If a more thorough cleaning is required, brush the metal pins with very fine sandpaper.
- After cleaning or before storing the probe, rinse it with tap water.

**CALIBRATION**

For the greatest accuracy, frequent calibration of the instrument is recommended.

- Pour a small quantity of the indicated calibration solution in a beaker:
  - 1413 µS/cm for HI 983302N, 1500 ppm for HI 983301N or 1382 ppm for HI 983301N/S.
- If possible, use plastic beakers to minimize any EMC interference.
- Immerse the EC or TDS probe in the solution, making sure that metal pins are completely submerged.

**Note:** the probe should be submerged approximately 4 cm (1½") in the solution and it does not touch nor stand close to the side walls of the beaker. The tip can lay on the bottom of the beaker.

- Wait for a couple of minutes for thermal equilibrium to be reached.
- Tap the probe gently on the bottom, then shake it while rotating to make sure no air bubbles have remained trapped.
- Adjust the calibration trimmer with the supplied screwdriver until the display shows 1.41 (mS) for HI 983302N, 1500 (ppm) for HI 983301N or 1380 (ppm) for HI 983301N/S.
- The calibration is now complete and the instrument is ready for use.

**ACCESSORIES**

- HI 7632 * Conductivity probe with built-in temperature sensor and 2 m (6.6’) cable
- HI 7634 * Conductivity probe with built-in temperature sensor and 2 m (6.6’) cable
- HI 70031P 1413 µS/cm calibration solution, 20 mL sachet (25 pcs)
- HI 70442P 1500 ppm calibration solution, 20 mL sachet (25 pcs)
- HI 70032P 1382 ppm calibration solution, 20 mL sachet (25 pcs)
- HI 7031L 1413 µS/cm calibration solution, 500 mL bottle
- HI 70442L 1500 ppm calibration solution, 500 mL bottle
- HI 7032L 1382 ppm calibration solution, 500 mL bottle
- HI 7061L Electrode cleaning solution, 500 mL bottle
- HI 710005 12 Vdc power adapter, US plug
- HI 710006 12 Vdc power adapter, European plug
- HI 710012 12 Vdc power adapter, Australian plug
- HI 710013 12 Vdc power adapter, Southern Africa plug
- HI 710014 12 Vdc power adapter, UK plug

* To be replaced by authorized technical personnel only.

**CE DECLARATION OF CONFORMITY**

**Recommendations for Users**

Before using these products, make sure that they are entirely suitable for the environment in which they are used.

Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment.

The metal band at the end of the probe is sensitive to electrostatic discharges. Avoid touching this metal band at all times.

During operation, ESD wrist straps should be worn to avoid possible damage to the probe by electrostatic discharges.

Any variation introduced by the user to the supplied equipment may degrade the instrument’s EMC performance.

To avoid electrical shock, do not use these instruments when voltages at the measurement surface exceed 24 Vac or 60 Vdc.

Use plastic beakers to minimize any EMC interferences.

To avoid damages or burns, do not perform any measurement in microwave ovens.