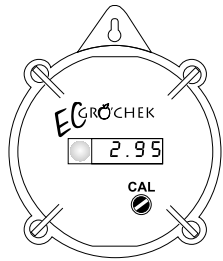


## Instruction Manual

**EC** GRÖCHEK & **TDS** GRÖCHEK  
(HI 983302) (HI 983301)

**On-line, Waterproof  
EC-TDS meter with Alarm**



**HANNA**  
instruments  
<http://www.hannainst.com>

**CE**  
These Instruments are in  
Compliance with the CE Directives

### WARRANTY

EC and TDS GRÖCHEK 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 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.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

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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. 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](mailto:tech@hannainst.com).

These instruments are in compliance with the **CE** directives EN 50081-1 and EN 50082-1.

### 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 EC probe (for HI 983302);
- HI 7634 TDS probe (for HI 983301);
- Calibration screwdriver;
- 12 VDC power adapter.

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 GRÖCHEK are instruments specially designed to meet the needs of growers in greenhouses and hydroponic applications.

The housing has been completely sealed against vapors and humidity with IP54 rating.

You can simply hang the meter right above the sample to be tested for continuous measurement.

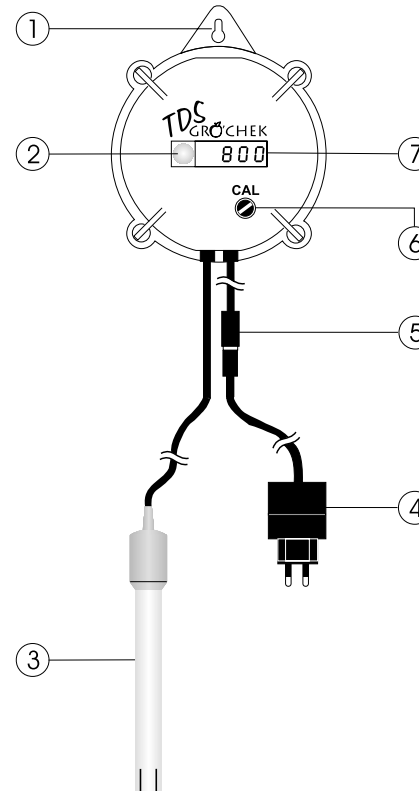
Both meters come with a probe that compensates for the temperature variation automatically. The probe is easy to clean and requires little maintenance.

You can even select your own setpoint and be alerted of an abnormal situation with a flashing LED alarm.

Measurements are highly accurate and the meters can be calibrated at one point. In addition, the TDS GRÖCHEK uses a specially devised formula which perfectly reflects the needs of growers. In fact, the common method of measuring Total Dissolved Solids by multiplying the conductivity by 0.5 is far off the mark in horticulture with high concentrations of phosphate, nitrogen, etc.

You no longer need to worry about battery changes either: the unit runs without interruption on 12 VDC power supply.

### FUNCTIONAL DESCRIPTION



1. Molded eye
2. Alarm LED
3. EC or TDS probe
4. 12 VDC power adapter
5. Power supply connector
6. Calibration trimmer
7. Liquid Crystal Display

### SPECIFICATIONS

EC GRÖCHEK – HI 983302	
Range	0.00 to 9.99 mS/cm (EC)
Resolution	0.01 mS/cm (EC)
Accuracy (@ 25°C/77°F)	±2% f.s.
Typical EMC Deviation	±2% f.s.
Temperature Compensation	Automatic 5 to 50°C (41 to 122°F)
Setpoint	0.70 to 3.50 mS/cm (EC)
Hysteresis	±0.20 mS/cm (EC) around setpoint
Alarm	LED blinks when EC value is outside hysteresis range
Calibration	Manual with one trimmer
Probe	HI 7632 EC probe (included)
Casing	IP54
Power supply	External 12 VDC (included)
Dimensions	86 x 94 x 33 mm (3.4 x 3.7 x 1.3")
Weight	150 g (5.3 oz.)

TDS GRÖCHEK – HI 983301	
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.
TDS Factor	0.7
Temperature Compensation	Automatic 5 to 50°C (41 to 122°F)
Setpoint	500 to 1600 mg/L (ppm)
Hysteresis	±100 ppm around setpoint
Alarm	LED blinks when TDS value is outside hysteresis range
Calibration	Manual with one trimmer
Probe	HI 7634 TDS probe (included)
Casing	IP54
Power supply	External 12 VDC (included)
Dimensions	86 x 94 x 33 mm (3.4 x 3.7 x 1.3")
Weight	150 g (5.3 oz.)

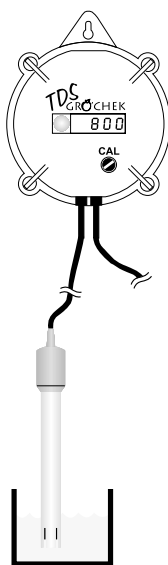
## OPERATIONAL GUIDE

### 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 EC or TDS 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.

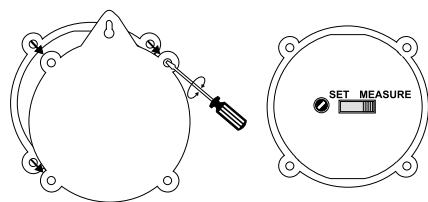
- The LCD will show the EC or TDS value. Any initial variation may be due to temperature compensation and the fact that the probe is adjusting itself to the new sample. Allow the reading to stabilize and the meter will start continuous monitoring.



### ADJUSTING THE SETPOINT

With the EC and TDS GRO-CHEK, you can select your own setpoint and be alerted with a visual LED alarm when an abnormal situation arises.

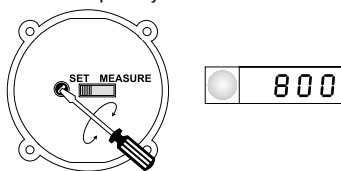
- Unscrew and remove the rear panel and gasket seal to access the MEASURE/SET switch.



- Move the switch to the left (SET Mode).



- With a small screwdriver adjust the setpoint trimmer to display the desired value in the 0.70 to 3.50 mS/cm or in the 500 to 1600 ppm range for the EC and TDS GRO-CHEK, respectively.



- Make sure the switch is moved back to the right (MEASURE Mode).
- Replace the rear panel and the gasket, ensuring the unit is properly closed.
- Whenever the EC or TDS reading varies by more than  $\pm 0.20$  mS/cm or  $\pm 100$  ppm from the setpoint, respectively, the red alarm LED will blink.

### 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 electrode 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 when not in use, rinse the probe with tap water.

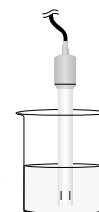
## CALIBRATION

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

- Turn the meter on and make sure that the MEASURE/SET switch is on the MEASURE mode.
- Pour a small quantity of 1413  $\mu$ S/cm calibration solution or 1500 ppm TDS calibration solution in a beaker. If possible, use plastic beakers to minimize any EMC interference.

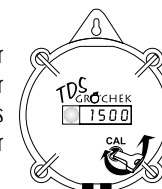


- Immerse the EC or TDS probe in the solution, making sure that metal pins are completely submerged.



Note: the probe should be submerged approximately 4 cm (1½") in the solution. Moreover, in order not to affect the accuracy of measurements, it is important that probe body 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" (HI 983302) or "1500 ppm" (HI 983301).
- The calibration is now complete and the instrument is ready for use.



The instrument should be recalibrated at least once a month and after performing probe cleaning procedure.

## ACCESSORIES

- HI 7632 \* EC probe with Automatic Temperature Compensation and 2 m (6.6') cable
- HI 7634 \* TDS probe with Automatic Temperature Compensation and 2 m (6.6') cable
- HI 70031P 1413  $\mu$ S/cm (EC) calibration solution, 20 mL sachet (25 pcs)
- HI 70442P 1500 ppm (TDS) calibration solution, 20 mL sachet (25 pcs)
- HI 7052L 1500 ppm (TDS) calibration sol., 460 mL bottle
- HI 7031L 1413  $\mu$ S/cm(EC) calibration sol., 460 mL bottle
- HI 7061L Electrode cleaning solution, 460 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 only by authorized service technicians

## CE DECLARATION OF CONFORMITY

HANNA  
Instruments

CE

DECLARATION OF CONFORMITY

We

Hanna Instruments Srl  
Via E. Fermi, 10  
35030 Sarmeola di Rubano (PD)  
ITALY

herewith certify that the EC/TDS meters

HI 983301 HI 983302

have been tested and found to be in compliance with the following regulations:

IEC 801-2	Electrostatic Discharge
IEC 801-3	RF Radiated
IEC 801-4	Fast Transient
EN 55022	Radiated, Class B
EN 61010-1	Electrical Safety

Date of Issue: 23-10-1997

D. Volpato - Engineering Manager  
On behalf of  
Hanna Instruments S.r.l.

### 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.