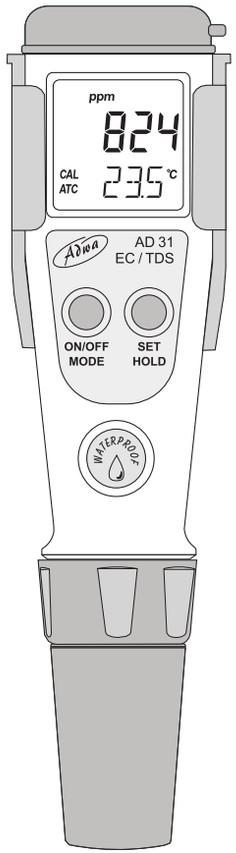
USER MANUAL

AD31 & AD32
Waterproof EC/TDS Testers



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ISTAD31 04/10

Dear Customer,

Thank you for choosing an Adwa product. Please read carefully this manual before starting operations.

These instruments are in compliance with the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC for electrical equipments.

For additional technical information, please e-mail us at **sales@adwainstruments.com**.

INTRODUCTION

AD31 and **AD32** are waterproof EC, TDS and temperature testers. The housing has been completely sealed against humidity.

All EC and TDS readings are automatically temperature compensated (ATC), and temperature values can be displayed in °C or °F units.

The EC/TDS conversion factor (CONV) can be selected by the user, as well as the coefficient β (BETA) for temperature compensation. The instruments can be calibrated at one point.

Measurements are highly accurate with a unique stability indicator right on the LCD. The models are also provided with a low battery symbol which warns the user when the batteries need to be replaced.

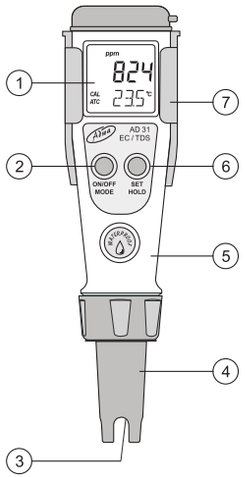
The **AD32P** probe supplied with the meters, is interchangeable and can be easily replaced by the user.

The encapsulated temperature sensor allows fast and accurate temperature measurement and compensation.

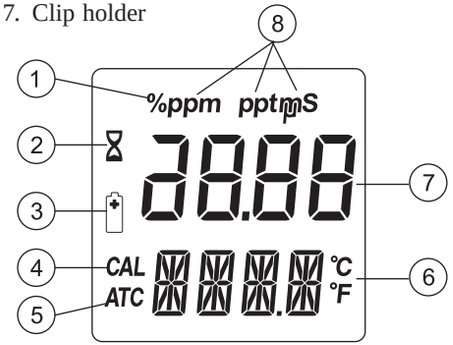
Each meter is supplied complete with:

- **AD32P** EC probe
- 4 x 1.5V batteries, button type
- User manual

FRONT PANEL & DISPLAY



1. Dual line LCD
2. ON/OFF/ MODE button
3. EC probe & temperature sensor
4. Probe body
5. Battery compartment (inside)
6. SET/HOLD button
7. Clip holder



1. Percentage indicator for battery life
2. Stability indicator (hourglass symbol)
3. Low battery warning indicator
4. Calibrated meter indication
5. ATC (Automatic Temperature Compensation) indicator
6. Secondary LCD level
7. Primary LCD level
8. Measurement unit for primary level (ppm & µS for **AD31**, ppt & mS for **AD32**)

TECHNICAL DATA

Range	0.0 to 60.0°C / 32.0 to 140.0°F 0 to 3999 µS/cm / 0 to 2000 ppm (**AD31**) 0.00 to 20.00 mS/cm / 0.00 to 10.00 ppt (**AD32**)
Resolution	0.1 °C / 0.1°F 1 µS/ppm (**AD31**) 0.01 mS/ppt (**AD32**)
Accuracy (@20°C/68°F)	±0.5°C / ±1°F ±2% f.s. (EC/TDS)
Calibration	Automatic, 1 point 1413 µS, 1382 ppm or 1500 ppm (**AD31**) 12.88 mS, 6.44 ppt or 9.02 ppt (**AD32**)
TDS Factor	User-selectable from 0.45 to 1.00
Temperature Compensation	Automatic, from 0 to 60°C β adjustable from 0.0 to 2.4%/°C
Probe	**AD32P** (included)
Battery Type	4 x 1.5V button type
Battery Life	Approx. 100 hours of use
Auto-off	After 8 minutes of non-use
Environment	-5 to 50°C (23 to122°F); RH 100%
Dimensions	175.5 x 39 x 23 mm
Weight	100 g

PROBE & SOLUTIONS

AD32P	Spare EC probe for **AD31** & **AD32**
A70031P	1413 µS/cm solution 20 ml sachet (25 pcs)
A70030P	12.88 mS/cm solution 20 ml sachet (25 pcs)
A70032P	1382 ppm solution 20 ml sachet (25 pcs)
A70442P	1500 ppm (mg/l) solution 20 ml sachet (25 pcs)

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OPERATIONAL GUIDE

Turn the meter on

- Press and hold the ON/OFF/MODE button until the LCD lights up. All the used segments will be visible for one second (or as long as the button is pressed), followed by the percentage indication of the remaining battery life. Then the meter enter normal measurement mode.

Freeze the display

- While in measurement mode, press the SET/HOLD button. The reading will be frozen on the LCD. Press any button to return to normal mode.

Turn the meter off

- While in measurement mode, press the ON/OFF/MODE button. OFF will appear on the secondary display. Release the button.

Note: If measurements are taken in different samples successively, rinse the probe thoroughly to eliminate cross-contamination. After cleaning, rinse the probe with some of the sample to be measured.

MEASUREMENT & CALIBRATION

Taking Measurement

- Select the desired EC or TDS mode by pressing the SET/HOLD button.
- Submerge the probe in the solution to be tested while stirring it gently.
- Measurements should be taken when the stability indicator (hourglass) disappears.
- The EC or TDS value automatically compensated for temperature is shown on the primary LCD level while the secondary one shows the sample temperature.

Note: Before taking any measurement, make sure the meter has been calibrated (CAL tag is displayed).

EC Calibration

For better accuracy, frequent calibration of the tester is recommended. In addition, calibration should be performed whenever the probe is replaced, after testing aggressive chemicals and where high accuracy is required.

Calibration Procedure

- From normal EC measuring mode, press and hold the ON/OFF/MODE button until OFF on the secondary LCD is replaced by CAL.
- Release the button and immerse the probe in the proper calibration solution (**A70031** for **AD31** and **A70030** for **AD32**).
- Once the calibration has been automatically performed, the LCD will display OK for one second and the meter will return to normal measurement mode.

The CAL symbol on the LCD means that the meter is calibrated.

Note: Since there is a known relationship between EC and TDS readings, it is not necessary to calibrate the meter in TDS. If the conversion factor is either 0.5 or 0.7, the meter will allow a direct calibration in ppm (or ppt) by using the Adwa calibration solution (see “Probe and Solution” section).

Note: To reset to the default calibration value, press the ON/OFF/MODE button after entering the calibration mode. The LCD will display “ESC” for one second and the meter will return to normal mode. The CAL symbol on the LCD will disappear.

SETUP

Setup mode allows the selection of temperature unit, TDS factor (CONV) and temperature compensation coefficient (BETA).

To enter the setup mode, press the ON/OFF/MODE button until CAL on the secondary display is replaced by TEMP and the current temperature unit (e.g. TEMP °C). Then:

For °C/°F selection:

- Use the SET/HOLD button.
- Press the ON/OFF/MODE button once to set the TDS factor, twice for selecting the temperature coefficient, or three times to return to the normal measuring mode.

For TDS factor (CONV) selection:

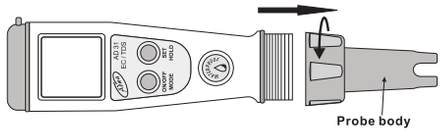
- After the temperature unit has been selected, press the ON/OFF/MODE button again to show the current conversion factor (e.g. 0.50 CONV).
- Press SET/HOLD to change the value.
- Press the ON/OFF/MODE button once to set the temperature coefficient, or twice to return to the normal measuring mode.

For selecting the temperature compensation coefficient (BETA):

- After setting the TDS factor, press the ON/OFF/MODE button to show the current temperature compensation coefficient (e.g. 2.1 BETA).
- Press SET/HOLD to change the value.
- Press the ON/OFF/MODE button to return to the normal measuring mode.

PROBE REPLACEMENT

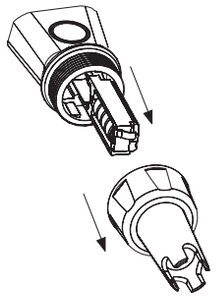
The probe can be easily replaced by unscrewing the body as shown below.



BATTERY REPLACEMENT

When the batteries become weak, the battery symbol on the LCD lights up to indicate a low battery condition. Batteries should be replaced soon.

To change the batteries, unscrew and release the electrode body. Take out the battery compartment and carefully replace all four batteries while paying attention to their polarity.



Reattach and tighten the electrode body properly to ensure a watertight seal.