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Digital Resistivity Meter

Part No. 130-87

Instruction Manual

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Ver. 3.0

OFI Testing Equipment, Inc.

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Intro

The OFITE Digital Resistivity Meter is a portable measuring device designed to give a quick, reliable measurement of the resistivity of a small sample expressed in ohm-meters. The transistorized meter accurately measures the resistivity of fluids, slurries and semisolids having resistivities from 0.01 to 400 ohm-meters. The digital display shows both resistivity (in ohm-meters) and concentration of NaCl (in ppm, kppm, and gr/gal), as well as temperature (in °C or °F).

The transparent lucite cell may be easily removed and cleaned. The meter is powered by readily available 9 volt batteries and it is rugged and suitable for field usage.

Specifications

Cell Length: 3.4" (86.4 mm)
Carrying Case: 8.0" × 5.0" × 3.5" (203 × 126 × 88 mm)
Power Supply: 2 9-Volt Alkaline Batteries or 12-Volt DC Plug (for connecting to car battery or 12-Volt AC adapter)
Resistivity Range: 0.01 – 400 ohm-meters
Temperature Range: 14 – 140°F (-10 - 60°C)
NaCl Range: .2 – 300 kppm

The OFITE Digital Resistivity Meter can measure results in four different ranges. The electronic automatically switch to the appropriate range based on the readings from the test. The ranges and readabilities are listed below (in ohm*meters):

0.000 - 0.499 Readability: .001
0.50 - 4.99 Readability: .01
5.0 - 49.9 Readability: .1
50 - 499 Readability: 1



Note

Exact ranges will vary due to cell calibration and electronic current source calibration.

Components

#130-85-04 Rubber Suction Bulb
#130-87-05 Resistivity Probe Assembly without Thermometer
#147-02 Battery, Alkaline, 9 Volt, Qty: 2
#165-43 Pipe Cleaner

Optional:

#130-87-014 Calibration Standard, 1,413 Microsiemens
#130-87-015 Calibration Standard, 10,000 Microsiemens
#130-87-016 Calibration Standard, 50,000 Microsiemens

Procedure

1. Press the "Power/Exit" button to turn the unit on. The display screen will show the temperature and either Resistivity or Concentration of NaCl.

To change the measurement reading, press the "Menu" button, then press the "Units" button to toggle between Resistivity and Concentration of NaCl. Press the "Select" button to save your choice.

To change the units, press the "Units" key repeatedly until you reach the desired units. Press the "Select" button to save your choice.

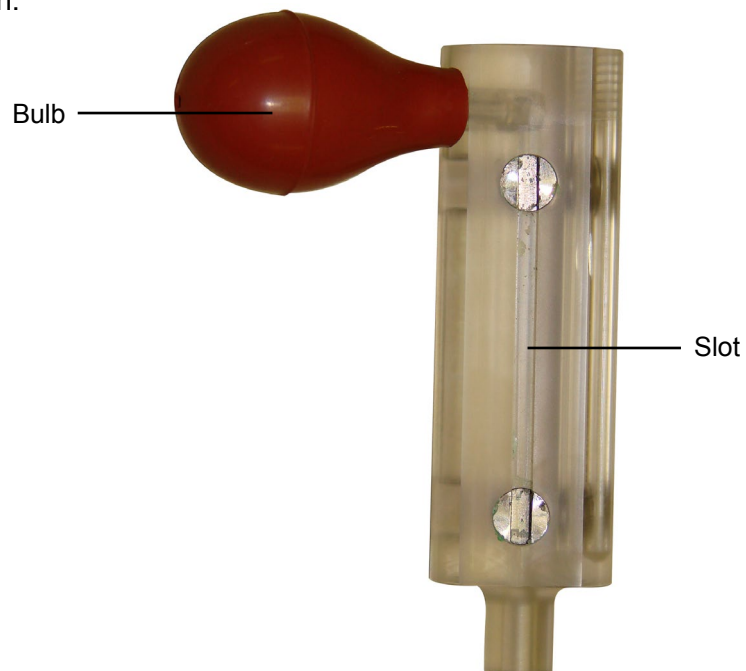
The "Units" button offers the following options:

- Degrees C
- Degrees F
- Concentration in Parts Per Million (ppm)
- Concentration in Kilo Parts Per Million (kppm)
- Concentration in Grains Per Gallon (gr/gal)

2. Use the suction bulb to pull the sample into the lucite cell. Empty and refill the cell several times to thoroughly wet the cylinder walls.

When testing semi-solid fluid, prepare a sample of uniform moisture content and fill the slot on the top of the cell completely.

3. Connect the cell to the two terminal posts on the meter. Be sure the sample fills the area between the two metal posts in the cell. Wait for the sample to reach room temperature.
4. Record the Resistivity/Concentration and Temperature from the display screen.



Calibration

The Digital Resistivity Meter uses a two-point calibration method to calibrate for resistivity. Use a 1,413 μmhos standard for the first point and a 50,000 μmhos standard for the second point.

1. Press the "Menu" button three times to enter the calibration program.
2. Press "Select". You will be prompted for the first point.
3. Using the procedure described on page 3, fill the test cell with 1,413 μmhos standard (#130-87-014) and connect the cell to the meter.
4. Wait for the reading on the display to stabilize and press "Select".
5. When prompted for the second point, repeat the process with 50,000 μmhos calibration (#130-87-016).
6. Wait for the reading on the display to stabilize and press "Select".
7. When the calibration is complete, press "Select" to save the new data.
8. To verify the calibration, test a sample of one of the standards. Compare the reading to the resistivity of the standard. If your results do not match, it will be necessary to recalibrate the meter.

Maintenance

1. Always clean the cell immediately after making a measurement. Purge the cell with distilled water until it is clear. If additional cleaning is necessary, use a pipe cleaner and mild soap. Use no other solvents. Avoid scratching the surface of the cell.
2. To replace the 9-Volt batteries inside the unit, unscrew the four hex screws and remove the upper panel. This will provide access to the batteries. Replace the batteries and secure the plate in place again.
3. A 12-Volt DC plug is provided on the upper panel for connecting the unit to a car battery or 12-Volt AC adapter.
4. If the display screen is difficult to read, press the "Back Light" button to activate the back light and brighten the display.

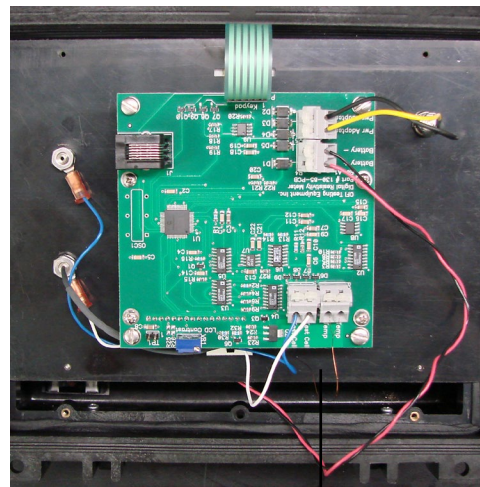
Error Codes

Error codes 1 through 4 are fatal errors. The equipment must be returned to OFITE for service. Be sure to record the error code and send it with the unit to help the technician diagnose the problem.

If the unit returns error code 5, remove the face plate and inspect the thermistor wires. These wires are very thin and easily damaged. If they are disconnected, re-insert them into the connector. If they are damaged, return the unit to OFITE for service by a qualified technician.

Error Codes:

- 1: A timeout occurred in the A/D converter
- 2: Auto-calibration failed
- 3: Auto-calibration failed
- 4: Auto-calibration failed
- 5: Thermistor resistance out of range



Thermistor Wires

Warranty and Return Policy

Warranty:

OFI Testing Equipment, Inc. (OFITE) warrants that the products shall be free from liens and defects in title, and shall conform in all respects to the terms of the sales order and the specifications applicable to the products. All products shall be furnished subject to OFITE's standard manufacturing variations and practices. Unless the warranty period is otherwise extended in writing, the following warranty shall apply: if, at any time prior to twelve (12) months from the date of invoice, the products, or any part thereof, do not conform to these warranties or to the specifications applicable thereto, and OFITE is so notified in writing upon discovery, OFITE shall promptly repair or replace the defective products. Notwithstanding the foregoing, OFITE's warranty obligations shall not extend to any use by the buyer of the products in conditions more severe than OFITE's recommendations, nor to any defects which were visually observable by the buyer but which are not promptly brought to OFITE's attention.

In the event that the buyer has purchased installation and commissioning services on applicable products, the above warranty shall extend for an additional period of twelve (12) months from the date of the original warranty expiration for such products.

In the event that OFITE is requested to provide customized research and development for the buyer, OFITE shall use its best efforts but makes no guarantees to the buyer that any products will be provided.

OFITE makes no other warranties or guarantees to the buyer, either express or implied, and the warranties provided in this clause shall be exclusive of any other warranties including ANY IMPLIED OR STATUTORY WARRANTIES OF FITNESS FOR PURPOSE, MERCHANTABILITY, AND OTHER STATUTORY REMEDIES WHICH ARE WAIVED.

This limited warranty does not cover any losses or damages that occur as a result of:

- Improper installation or maintenance of the products
- Misuse
- Neglect
- Adjustment by non-authorized sources
- Improper environment
- Excessive or inadequate heating or air conditioning or electrical power failures, surges, or other irregularities
- Equipment, products, or material not manufactured by OFITE
- Firmware or hardware that have been modified or altered by a third party
- Consumable parts (bearings, accessories, etc.)

Returns and Repairs:

Items being returned must be carefully packaged to prevent damage in shipment and insured against possible damage or loss. OFITE will not be responsible for equipment damaged due to insufficient packaging.

Any non-defective items returned to OFITE within ninety (90) days of invoice are subject to a 15% restocking fee. Items returned must be received by OFITE in original condition for it to be accepted. Reagents and special order items will not be accepted for return or refund.

OFITE employs experienced personnel to service and repair equipment manufactured by us, as well as other companies. To help expedite the repair process, please include a repair form with all equipment sent to OFITE for repair. Be sure to include your name, company name, phone number, email address, detailed description of work to be done, purchase order number, and a shipping address for returning the equipment. All repairs performed as "repair as needed" are subject to the ninety (90) day limited warranty. All "Certified Repairs" are subject to the twelve (12) month limited warranty.

Returns and potential warranty repairs require a Return Material Authorization (RMA) number. An RMA form is available from your sales or service representative.

Please ship all equipment (with the RMA number for returns or warranty repairs) to the following address:

OFI Testing Equipment, Inc.
Attn: Repair Department
11302 Steeplecrest Dr.
Houston, TX 77065
USA

OFITE also offers competitive service contracts for repairing and/or maintaining your lab equipment, including equipment from other manufacturers. For more information about our technical support and repair services, please contact techservice@ofite.com.