



CONDUCTIVITY METER(Desktop version)

Model : DCM-200

INSTRUCTION MANUAL



1. Features

- ✍ Highly reliable and accurate meter.
- ✍ Very responsive Platinum Conductivity cell.
- ✍ Latest ICs used for quick sensing and high accuracy.
- ✍ Input is compactable for any type of electrode(1.0 cell constant).
- ✍ Cell adjustment controls are provided on front of instrument.
- ✍ Check adjustment controls are provided on rear of instrument.

2. Introduction

A large number of salts such as carbonates, bicarbonates, chloride, sulphates, phosphates & nitrates of calcium, magnesium, sodium, potassium, iron and manganese etc., are found dissolved in natural water. Similarly coastal marine water contains substantial quantity of these salts. A high content of dissolved solids elevates the density of water, influences Osmoregulation of fresh water organism and reduces solubility of gases thereby reducing the utility of water for drinking, irrigation and industrial purposes. Therefore, determination of Total Dissolved solids is one of the important parameters in water analysis.

SANSEL make digital Conductivity meter DCM-200 is extremely useful for fast and accurate determination of Total Dissolved Solids in a liquid. The use of solid state technology and IC circuitry makes this instrument versatile and reliable.

The multi position selector switch quickly sets the digital display to the desired test range.

The instrument is ideal for testing of natural water, drinking water, waste water, brine solution, sea water and soluble salts, etc.,

3. Technical Specifications

Model	DCM-200
Range	0 – 20 μ S/ 200 μ S/ 2000 μ S/ 20mS / 200mS (5 range selection using front rotary switch)
Resolution	0.01 / 0.1 / 1 for μ S & 0.01 / 0.1 for mS
Cell Constant	Adjustable with indication on display
Temperature Compensation	0 to 50 °C(Manual) continuously Adjustable
Display	0.5" 3 ½ Digit 7 segment Red LED
Accuracy	± 1 % of Range ± 1 digit
Sensor	Platinum Conductivity cell(1.0 cell constant) with Banana male connector
Input connection	Banana socket
Operating Environment	0 to 50 °C / 20 to 95 % RH non condensing
Power supply	230V AC / 50 Hz ± 10 %
Overall Dimension in mm	185 x 235 x 75 (L x B x H)
Instrument Weight	2 kg(Approx.)

Note: Due to continuous product improvements, Published specifications may change with out notice

3A. Standard Delivery

1. Basic Instrument
2. Platinum Conductivity Cell
3. Electrode Clamp & stand set
4. Instruction manual

3B. Optional

1. Imported certified Standard Solution (Extra charge)

4. Measurement Controls

4A. Front Panel

4A-1. Power “ON” Switch

This is the ON/OFF switch by means of which the instrument can be switched ‘ON’ after connecting the input cable power.

4A-2. Digital Display

3½ digit 7 Segment LED display that reads Conductivity value of any aqueous solution

4A-3. Function Switch

This is a 3 position switch with following functions

1. In the CHECK position the meter should display 1000 ignoring the position of the decimal point. If necessary, a just reading with CAL control provided at the ack of the instrument.
2. In the “Conductivity” position it measures Total Dissolved Solids in the solution.
3. In the Cell Constant position, the display indicates constant at which the instrument has been set.

4A-4. Range Switch

This switch is used for selecting one of the 5 ranges of Conductivity in μS or mS .

4A-5. Cell Constant

This control is used to set the instrument as per actual Cell Constant of the Conductivity cell. Bring the Function Switch at cell Constant position and with the help of cell constant knob, bring the reading to the actual value of the Conductivity cell in use.

4A-6. Temperature

With this control, the temperature compensation between $0\text{-}50^{\circ}\text{C}$ can be adjusted.

4B. Back Panel

4B-1. CAL control

This potentiometer is used to adjust the display to 1.000 when the Function switch is at "Check" position.

4B-2. Input Connection

Two banana sockets are the input of the instrument. The Conductivity cell lead fitted with banana plug is inserted in these sockets for connecting the Conductivity cell to the instrument.

4B-3. Fuse

100 mA fuse is used to control the current from the power supply to the instrument.

5. Check Procedure (Functional Testing)

- 5.1. Ensure that earth connection of the instrument is properly made with supply earth before switching ON the instrument.
- 5.2. Connect the instrument to the AC main supply and allow it to warm up for 10 minutes.
- 5.3. Put the Function switch to CHECK position.
- 5.4. See that the display reads 1000(ignore decimal point). If necessary adjust to 1000 with the help of CAL control provided at the back of the instrument.
- 5.5. Put the Function switch to Conductivity position and range switch to any of the μS or mS position. The instrument read "000" approximately.
- 5.6. The instrument is ready for use.

6. Operation Procedure

6A. Connection of the Conductivity Cell

1. Wash the Conductivity cell thoroughly with distilled water (before use the Conductivity cell should be kept in distilled water for at least 24 hours)
2. Fit the Conductivity cell leads to the input sockets at the back of the instrument.

6B. Standardization of the Instrument & Cell Constant Verification

The following procedure is to be adopted to standardize the instrument with measuring cell

1. Take the standard solution of known Conductivity at 25°C in a beaker and dip the measuring cell in to it.
2. Set the Range switch within the range of the standard solution.
3. Set the Function switch to the Check position and see that the display reads 1.000. If necessary, set it with CAL potentiometer provided at the back of the instrument.

4. Set the Temperature control to the actual Temperature of the solution.
5. Set the Function switch to Conductivity position and bring the display to the reading corresponding to the known Conductivity by means of the Cell constant compensation control. The instrument is standardized and can be used to determine the Conductivity of unknown solution.
6. Bring the Function switch to Cell Constant position and note the reading. The display shows the correct cell constant of the cell. Note down and paste this value on the cell.

6C. Conductivity Measurement

To measure the Conductivity of any solution, follow the under mentioned steps.

1. Rinse the cell with solution whose Conductivity value is to be measured.
2. Dip the Conductivity cell in the solution under test.
3. Set the Function switch to "Check" Position.
4. Display must read 1000 (irrespective of the decimal), if it doesn't adjust it to 1000 by rotating the "Cal" control provided at the rear panel.
5. Set the Function switch to Cell Constant position.
6. Set the Temperature control to the actual temperature of the solution.
7. Now set the Function switch to Cond position.
8. Bring the Range switch at position where maximum resolution is obtained.
9. Read the display. This will exact Conductivity at 25°C.

6D. Care of the Conductivity cell

After use, the Conductivity cell must be thoroughly washed and immersed in the distilled water. If the platinum electrodes are directly in touch with the deposits the cell may be washed by cleaning in 50% detergent solution and scrubbing it with very fine brush. For more tenacious deposits, 2% solution of HCL may be used. Ensure that the platinization of the electrode is not damaged.

WARNING : PLEASE DO NOT FINGER THE Conductivity CELL.

6E. Preparation of Standard Solution

Dissolve 0.745526gm of dried potassium chloride (KCL AT graded) and dissolve it in de-ionised water of very low conductivity, so as to prepare 1 Litre of the solution. This solution will have a conductivity of 1408.8 μ S at 25°C

Note: The conductivity of the standard solution varies with the temperature and electrolyte concentration.

7. Fault Finding Guide

The following table may be useful in correcting malfunctions and avoiding simple pitfalls.

CAUSE	REMEDY
A.C Supply is not present.	Check A.C supply
Fuse at the back open circuit	Replace fuse (100mA)
One of D.C supplies faulty	Check +5 V -5V supplies
INACCURATE READING'S	
Cell Constant not Correct	Verify the Cell Constant as described in Section 6B.
Instrument does not read 1000 when Function switch is at Check position.	Move Function switch to Check position and adjust display to 1000 by rotating the Cell control provided at the back panel.
In correct temperature setting.	The temperature control should be at the solution temperature.
DISPLAY FLICKERING	
Poor earthing	Connect on efficient earth
Severe interference through the electricity supply from switching devices etc. RF radiation's from similar devices.	Eliminate cause of disturbance or remove the instrument and place it in another location or connect to a different circuit.

If still the fault exists please contact our Customer support - +91 72999 72092 (or) refer to the nearest distributor for Repairs by the engineer of the company.

Note: Do Not play with the internal preset pot of the Instrument. Guarantee Stands Only if the seal of these pots is intact.

8. Maintenance

The design of the instrument is such that no routine maintenance is required to be carried out by the customer.

However, it should not be exposed unnecessarily to dirty atmosphere. And it should be covered by a plastic dust cover when not in use.

9. Warranty

The instrument is warranted off-site for a period of 12 months from the date of delivery against defect in material or workmanship other than glass electrode. During warranty period. Our liability is limited to the repair of the instrument at our works at Chennai.

For warranty, service or repair, the instrument must be sent to the company directly or through dealer or through a person or passenger train or air, properly packed, insured and the transportation charges should be pre-paid. Please indicate the defect observed and the serial no. of the instrument also.

Data subject to change without notice.

MANUFACTURER OF I

CALIBRATORS: LOW TEMPERATURE BATH, SUB ZERO CALIBRATOR, LIQUID CALIBRATION BATH, DRY BLOCK TEMPERATURE CALIBRATOR, HIGH TEMPERATURE DRY BLOCK CALIBRATOR, PORTABLE BLACK BODY SOURCE, HIGH TEMPERATURE BLACK BODY SOURCE, PRESSURE CALIBRATOR(-0.95bar to 700bar) IN DIFFERENT RANGES, PRECISION HUMIDITY / TEMPERATURE CALIBRATION SYSTEM, SEMI STANDARD PLATINUM RESISTANCE, MASTER THERMOCOUPLE, etc.,

LIQUID ANALYZING INSTRUMENTS: ONLINE LIQUID ANALYZER, pH METER, μ P BASED pH / ORP / TEMPERATURE METER, CONDUCTIVITY METER, Conductivity METER, DIGITAL NEPHELOMETER, COLONY COUNTER, SPECTRO PHOTO METER, ONLINE pH/ORP/TEMPERATURE CONTROLLER, ONLINE pH INDICATOR, ONLINE Conductivity (OR) CONDUCTIVITY INDICATOR, RO CONTROLLER etc.,

PROCESS CONTROL INSTRUMENTS: 5½ DIGIT PROCESS INDICATOR, AUTOCLAVE CONTROLLERS, ENVIRONMENTAL MONITORING SYSTEM & CONTROLLER, UNIVERSAL DATA LOGGER, TEMPERATURE DATA LOGGER, HUMIDITY TEMPERATURE DATALOGGER WITH SENSOR, HUMIDITY & TEMPERATURE INDICATOR WITH SENSOR, ULTRASONIC LEVEL INDICATORS/TRANSMITTERS (non-contact Level Measurement), WATER FLOW METER, TEMPERATURE CONTROLLER, DIGITAL TIMER, SIMPLE COUNTER /SET POINT COUNTER, RPM INDICATOR, RATE /RPM / FREQUENCY, INDICATOR & CONTROLLER, JUMBO DISPLAY, DC DRIVES, SINGLE / 3 PHASE THYRISTOR POWER REGULATOR etc.,

SENSORS: TEMPERATURE SENSORS, HUMIDITY SENSORS, PRESSURE SENSORS, LEVEL SENSORS, pH SENSORS, ORP SENSORS, CONDUCTIVITY SENSORS, Conductivity SENSORS, PROXIMITY SENSORS, FLOW SENSORS etc.,

10. Contact us

SANSEL INSTRUMENTS AND CONTROLS

**No.1/46, GANGA NAGAR, MMDA COLONY, MADURAVOYAL,
NEAR METTUKUPPAM, CHENNAI - 600 095, TN**

PH : 91 44 23783951 / 41 CELL : 7299972091, 98401 49941

EMAIL : enquiry@sansel.net, info@sansel.net website : www.sansel.net