Emcee Electronics, Inc.
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Precision Conductivity Meter

accurate & sensitive method to determine electrical conductivity of fluids

Emcee Model 1154 PRECISION CONDUCTIVITY METER

(ASTM Standard Test Method D 4308)

- Four standard ranges provide high resolution and accurate direct measurement of electrical conductivity of fluids from .01 to 20,000 picosiemens per meter (pS/m)
- Capable of being modified to provide higher conductivity ranges
- Optional capability to measure sample temperature
  Mechanical design of the Conductivity (KSLA) Cell allows accurate self measuring of the test sample volume (100 mL)
- Electronic circuitry automatically samples and holds the reading
- Large five digit liquid crystal display
- Internal self check calibration of all electronic circuits
- Ease of disassembly and cleaning of the Conductivity Cell
- Completely self contained powered by 6 standard 9 volt batteries monitored by a low battery indicator

Model 1154 Precision Meter

Range (pS/m)	Resolution (pS/m)
0 – 20	0.01
20 – 200	0.1
200 – 2000	1
2000 – 20,000	10

Accuracy:
± ½% of reading, ± 1 least significant digit (± 10% on 0 – 20,000 scale)

Sample Volume: 100 mL

Power: 6 – 9 volt Batteries

Applications – Many applications require highly accurate "rest" electrical conductivity measurements of fluids ranging in values from less than one pS/m to several thousand. "Rest" conductivity is the electrical conductivity at the initial instant of current measurement, after a dc voltage is impressed between electrodes (reciprocal of the resistance of uncharged fluid in the absence of ionic depletion or polarization). Whereas, the Precision Conductivity Meter was designed and developed to measure the conductivity of hydrocarbon fuels, the conductivity of most fluids can be measured. Limiting factors are the viscosity of the fluid and the conductivity level to be measured. However, the ranges can be modified to accommodate higher conductivity values than the standards offered.

Theory of Operation – A specific volume (100-mL) of test sample is introduced between the two concentric electrodes in the Cell. Using a triaxial cable, the Cell is connected to a sensitive dc ammeter in the Console and a dc voltage is applied between the two electrodes. Due to the physical geometry of the Cell, the Cell constant is stable and calculable. Thus, the resultant peak current is readily transformed and digitally displayed as picosiemens per meter (pS/m), also commonly known as conductivity units (CU). As defined in ASTM Standard Test Method D 4308, a CU is equal to a picosiemen per meter (1 CU = 1 pS/m). The enclosure technique employed in the Cell precludes the need for external screening from stray electrical fields

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