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The New Emcee Model 1153 Digital Conductivity Meter (ASTM D2624)

EMCEE DIGITAL CONDUCTIVITY METER

convenient,
reliable accurate
measurement of
electrical
conductivity

- Continuous standard electrical conductivity range from 0 to 2000 picosiemens per metre (pS/m)
- Available in other conductivity ranges
- LED illuminates during automatic test cycle (3 seconds)
- Temperature measured and displayed in Celsius and Fahrenheit
- Data stored (non volatile) until next test cycle performed
- Hermetically sealed
- Text presentation of operational status
- Automatic over range and low battery indications
- Single pushbutton operation
- Digital, liquid crystal display
- Powered by 3 standard lithium cells
- Intrinsically safe

Applications

The Model 1153 Digital Conductivity Meter provides a measurement of electrical conductivity of fluids in conductivity units (CU), which are defined as picosiemens per metre in ASTM D2624. The rugged electromechanical design of the Model 1153 meter facilitates ease of use for both laboratory and field applications. Initially, the Meter was designed and developed for safety reasons to measure the electrical conductivity of hydrocarbon fuels, particularly jet fuels. Additional pre-amp versions are available to accommodate measurement of a variety of fluids for different applications.

Safety

Hydrocarbon fuels typically have low electrical conductivity and consequently, are susceptible to retaining a static charge. Static charges are induced especially when the fuel is pumped at high rates through filters. Due to the relatively low conductivity, the static charge does not readily dissipate and is retained for a considerable period of time. This condition can result in an explosion and/or fire. Since conductivity is a function of temperature, it is very important to record the fuel temperature at which the measurement was performed.

Process Controls

In addition to safety reasons, electrical conductivity of fluids can be monitored for process control. Proper addition and mixing of various ingredients can be monitored at different stages of production. These applications are not limited to hydrocarbons, but have been expanded to other products such as paints, solvents, inks and other non-organic items.

Theory of Operation

The Emcee Model 1153 meter consists of an electronics assembly and a stainless steel probe. The probe, which is similar to a capacitor having concentric electrodes, is immersed in the fluid up to the set of holes closest to the electronics assembly. During the read cycle, a relatively small direct current flows through the fluid between the electrodes. The current is amplified in the electronics assembly and is displayed on the liquid crystal display in picosiemens per metre (pS/m). This data is then stored in non-volatile memory and can be retrieved until the next read cycle is performed.

Specifications

Range	0-2000 pS/m
Resolution	+/- 1 (0-2k pS/m)
Accuracy	2% of reading
Controls	1 pushbutton, dual function
Display	Liquid crystal, 5 digits
Safety Ground	Banana jack on case
Power	Battery 3 each, 3V Lithium
Op Temp Range	0 - 75C (32-165 F)
Dimensions	Length 19cm
Width	Width 5.7cm
Depth	Depth 4.3cm
Probe diameter	1.9cm
Weight	232g
Carrying Case	Hard, solvent resistant moulded plastic



Model 1153
Meter



Model 1153
with outer
electrode
detached