Hand Held Conductivity Meter

ASTM D2624, IP 274
DEF STAN 91-91, ASTM D1655

Conductivity Measurement of Aviation Fuels
Low Conductivity Hydrocarbon Liquids
Jet Fuel Conductivity

DEF STAN 91-91, ASTM D1655 & ASTM D910

The Seta D2 Hand Held Conductivity Meter (D2 JF-1A-HH model) meets the requirements of ASTM D2624. It provides an accurate and rapid conductivity measurement of distillate fuels; and is specifically designed for testing low conductivity fluids such as aviation kerosene.

Jet fuel typically has a low conductivity value (ranging from 0.2-50 pS/m) and is classified as a static accumulator which can cause danger in a receiving tank. Static dissipator additive is used to increase the fuels conductivity range and counter balance these problems but the effectiveness of the additive diminishes with time when transferred along pipelines and whilst in storage facilities. As a result it is important to be able to measure conductivity throughout the distribution system.

The Meter can measure fuel electrical conductivities between 0 and 2000 picosiemens/meter (pS/M), although it is optimised and normally used in the 0 to 500 pS/M range.

Applications

• Fuel terminals
• Refinery Fuel Quality
• Laboratory Personnel
• Oil Companies
• Pipelines
• Aviation Fuel QA personnel

Key Features

• Conductivity and temperature measurement
• High-Accuracy (± 1.5% of reading), AC measurement technology
• Stores up to 8 data locations (User can input location names)
• USB interface for ease of data transfer
• Sensor tip is capable of being fully immersed in liquid chemical
• Fully temperature compensated measurement
• Built-in long life lithium-ion rechargeable battery
• Windows data handling software
• Internal real time date & clock for data record keeping
• Built for Class 1 Div 2 Hazardous Locations
Principles of Operation

The conductivity meter is constructed of thermally stable internal electronics and two 316 SS coaxial electrode sensors which are suitable for use from 0 to 35°C.

The conductivity meter incorporates innovative electronics Digital Signal Processing (DSP) techniques to accurately determine the electrical conductivity of fuel products. Conductivity is highly affected by temperature change and reporting temperature with correction is a key requirement of making measurements in accordance with ASTM D2624. The conductivity meter allows users to measure samples in any container, such as a bucket, or glass jar offering an accurate, portable solution to measuring fuels in tanks, in the field or in the laboratory.

The instrument allows real time sample averaging with trend indicator and the user is provided with a visual reading that the sample has settled to a stable value for improved accuracy of testing. The meter has integral temperature measurement and compensation which is stored with readings.

An easy to use menu system allows up to 8 samples to be internally stored along with sample temperature, date and time information. This data can be held in internal non volatile memory for either readout on the display or transfer to a personal computer by the built in USB data link. The meter is supplied with software that graphs conductivity and temperature with time/date.

The unit is provided in an industry standard ATEX approved polyamide housing, with built in Lithium Ion rechargeable battery system.

D2624 Precision
Repeatability (r) & Reproducibility (R)
Conductivity Calibration & Verification

The calibration and verification tool can be plugged directly into the Conductivity Meter for quick and easy calibration/verification of the instrument. It is designed to calibrate then verify operation of the instrument in a specified range, and is optimised for AC conductivity measurement with active components ensuring long term stability and accuracy. On completion of the calibration a report is generated showing changes to the instrument and the re-calibration date is automatically updated.

The Calibration & Verification tool fits easily onto the tip of the handheld and has one switch to easily alter the range from low value (1% of scale) to high value (70% of scale). This allows the user to easily check conductivity calibration in the field thus eliminating the costly requirement of the need to returning the instrument for factory calibration.

Optional Accessories

Bench Stand

Designed to hold the handheld meter upright allowing the user to easily run tests. The stand is a sturdy rugged metal design which is easy to assemble and disassemble for transportation.

Carry Case

Designed to fit the meter and all required accessories for running the ASTM D-2624 Test. This case allows for easy transportation, is durable and completely water proof when closed.

USB Cable

Standard A to 5 pin Mini-B USB Cable (6’ Long) enabling the meter to communicate with a PC.

Metal Beaker with ground strap - 600mL

The stainless steel beaker is welded with a metal grounding strap to allow any DC Charges to dissipate (without affecting measurement).

Technical Specification

<table>
<thead>
<tr>
<th>Conductivity</th>
<th>Temperature</th>
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<tbody>
<tr>
<td>Range: 0-2000 pS/m (Contact factory for optional ranges)</td>
<td>0-35°C</td>
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<tr>
<td>Accuracy: +/-1.5 pS/m (+/-1.5% of reading)</td>
<td>+/-0.5°C</td>
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<tr>
<td>Resolution: 0.1 pS/m</td>
<td>0.1°C</td>
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<td>Power:</td>
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<td></td>
<td>Built-In 2.6Ah Lithium Ion Battery (1000 Samples)</td>
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<td></td>
<td>Universal Voltage Wall Mount Charger</td>
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<tr>
<td>Outputs:</td>
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<tr>
<td></td>
<td>128X64 Dot Matrix Display Indicating Conductivity &amp; Temperature</td>
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<tr>
<td></td>
<td>Sample Trend Line Graph to Assist Data Collection</td>
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</tbody>
</table>

Conductivity Sensor: 316 SS Coaxial Electrode K=.02
Temperature Sensor: Platinum RTD NIST Traceable Calibration
Materials: Housing Polyamide, sensor 316SS and PEEK
Calibration: ASTM D2624 Listed, ATEX
Housing – ATEX, FM, CSA, UL, CENELEC

Order Information

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>99708-0</td>
<td>Handheld Conductivity Analyser for Fuels</td>
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<tr>
<td>99714-0</td>
<td>Conductivity Calibration &amp; Verification Tool</td>
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<tr>
<td>99708-001</td>
<td>USB Cable</td>
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<tr>
<td>99708-002</td>
<td>Bench Stand</td>
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<tr>
<td>99708-003</td>
<td>Metal Beaker with ground strap (600mL)</td>
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<tr>
<td>99708-005</td>
<td>Carry Case</td>
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