LISST-Portable|XR

Low-Cost Particle Size Analyzer

Particle Size Distribution • Particle Volume Concentration

The LISST-Portable|XR is the world’s only portable, battery-powered laser-diffraction based particle size analyzer. Designed for use in the field and the laboratory, it analyzes the sample in a wet state to obtain particle size distribution and particle volume concentration. To ensure maximum portability and complete freedom from a laboratory environment, it features an integrated mixing chamber, touch panel display, rechargeable battery, shock mounted optics, built-in ultrasonic probe and onboard data processing and storage.
FEATURES

- Truly portable: Completely self-contained with built-in data logger, processor, rechargeable battery, ultrasonic probe and 7” touch panel color display
- No PC needed: Touch panel color display allows for easy programming, sample analysis and data display
- Rugged design: Sealed enclosure and shock mounted optics block
- Simplicity: On-screen step-by-step instructions walks the operator through a measurement
- Versatility: Multiple Mie models as well as Fraunhofer model available for inversion, selectable from the touch panel
- All data-processing performed on board and stored in ASCII format. No post-processing
- Outputs: Total volume concentration, mean size, standard deviation, optical transmission, D5, D10, D16, D25, D50 (median grain size), D60, D75, D84, D90, D95, D60/D10 (Hazen uniformity coefficient), particle surface area, silt fraction, silt volume, size distribution, battery voltage, sample notes, operator name and instrument configuration
- Compatible with water and IPA based fluids
- Laser-diffraction based

SPECIFICATIONS

Operating Concentration Range
- Size range 0.34 µm - 500 µm in 44 log-spaced size classes
- Concentration range 30 mg∙L⁻¹ - 1,900 mg∙L⁻¹. Note: Dependent on particle size (see table)

<table>
<thead>
<tr>
<th>Material</th>
<th>Concentration [mg/L] @ 95% transmission</th>
<th>Concentration [mg/L] @ 75% transmission</th>
<th>D10 [µm]</th>
<th>D50 [µm]</th>
<th>D90 [µm]</th>
<th>SMD [µm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO Fine</td>
<td>30</td>
<td>170</td>
<td>1.5</td>
<td>7</td>
<td>41</td>
<td>3</td>
</tr>
<tr>
<td>ISO Coarse</td>
<td>95</td>
<td>395</td>
<td>4</td>
<td>38</td>
<td>99</td>
<td>10</td>
</tr>
<tr>
<td>20-30 µm glass beads</td>
<td>195</td>
<td>1,075</td>
<td>19</td>
<td>24</td>
<td>34</td>
<td>24</td>
</tr>
<tr>
<td>Sieved sand 75-125 µm</td>
<td>345</td>
<td>1,925</td>
<td>85</td>
<td>122</td>
<td>175</td>
<td>112</td>
</tr>
</tbody>
</table>

Mechanical and Electrical
- Dimensions: [H × D × W] 17.7 cm × 29 cm × 44.3 cm (7” × 11.5” × 17.5”)
- Weight: 7.5 kg (17 lbs)
- Shipping box dimensions: [H × D × W] 78 cm × 53 cm × 28 cm (31” × 21” × 11”)
- Gross weight: 22 kg (49 lbs)
- Data storage: 1 GB flash card (~100,000 size distributions and associated sample information)
- Rechargeable Lithium-ion batteries provide six hours of sample processing. Batteries classified as non-hazardous for air shipment
- 25 W, 40 kHz ultrasonic probe with controller electronics, managed from the touch panel display