Since 1967 ION Sensor has been providing geophysicists worldwide with exceptional quality, precision geophones, testers and ancillary equipment. Our geophones, cables, cases, connectors and complete strings are designed to work flawlessly in every conceivable environment on earth; from the frozen tundra of the world’s Polar Regions to the searing heat of the hottest deserts, and everywhere in between.

As market leader and an ISO 9001: 2000 certified company, Sensor maintains production facilities and service support in The Netherlands, USA, Dubai, India, Canada, China, Russia and the UK. From our main plant in Voorschoten, The Netherlands and from our Dubai facility, we produce a geophone every four seconds, well over two million a year.

"Sensor has access to the vast wealth of knowledge acquired and developed by the ION group of companies"
GRIP Geophone String Analyzer

- Water resistant and rugged construction.
- True portability for field use
- Temperature compensation in a 50°C range ensures accurate readings
- Low amplitude sine-wave drive can detect dragging coils
- Plug-in modules allow for easy reconfiguration to a different string, geophone, or hydrophone type
- Self testing with low battery alarm

The GRIP Geophone String Analyzer is a hand-held unit, allowing a quick and efficient method of checking Geophone string Resistance, Impedance, and Polarity (GRIP). It is calibrated to match string parameters by a plug-in module, and any deviation from the nominal values are displayed on a panel meter. The unit is temperature compensated and has an audible tone for polarity and low battery warning.

Using the GRIP on the line, supported by the SMT-300 Geophone Tester to analyze any faults detected, ensures complete quality control of geophone strings. The GRIP can also be configured for checking hydrophone parameters and in combination with the SHARP Hydrophone Tester offers quality assurance for hydrophone units.

SPECIFICATIONS: GRIP

| Resistance Analysis Detects                  | Open-circuit coils  |
|                                            | Open-circuit shunt resistors |
|                                            | Open-circuit strings      |
|                                            | Short-circuit geophones   |
|                                            | Short-circuit strings     |
| Impedance Analysis Detects                 | Dragging coils           |
|                                            | Sticking coils           |
|                                            | Significant frequency, sensitivity, damping and distortion problems |
|                                            | Incorrectly planted geophones |
| Polarity Analysis Detects                  | Reversed polarity strings or geophones |

Battery Life

- 50 to 100 hours with alkaline batteries

Battery Type

- 2 x ‘PP-3’ 9 V

Physical Characteristics

- Dimensions: Approx. 185mm x 90mm x 65mm (7.2 in x 3.5 in x 2.5 in)
- Weight: Approx. 980g (31.4oz)

Limited Warranty Period

- 180 days
SMT-300 GEOPHONE TESTER

- Backwards compatible with the SMT-200
- Traceable to the SENSOR final test
- Ultra rugged die-cast aluminum body
- High durability piezo keypad
- Geophone specification library
- Long life on-board rechargeable NiMH battery
- Downloads/uploads data to PC
- Future expandable test platform

This fourth generation of the SMT series geophone tester is equally at home in the laboratory or field environment, and again sets the industry standard for testing geophone strings or individual elements to manufacturer’s standards.

An internal NiMH battery will power the SMT-300 for over 15 hours of field operation and the versatile onboard charger can accommodate 12 – 30 VDC. (110 - 260 VAC adaptor provided) When the fast-charge mode is selected, your SMT-300 can be recharged and ready to use in as little as 2 hours.

The water resistant, rugged aluminum body of the tester, improved durability keypad, and provided custom carrying case ensures that your SMT-300 will provide all the reliability and performance that you demand for years to come.
SMT-350 Tester software

- PC controlled tester
- SMT-300 Based
- High readability using PC screen
- Single record or spreadsheet test data display
- Statistics screen

The SMT-350 is Sensor’s new workshop / laboratory based test unit that uses your SMT-300 as an interface for the testing of geophones and geophone strings. It has the same specification as the SMT-300, but by using the power of your PC’s processor, interfaced with your SMT-300, calculations are performed faster. All specifications, setup, and data-files are stored locally on the PC, or alternatively can be stored on a network server.

Data files are stored as a tab-delineated format for ease of importing test data into your chosen spreadsheet program.

The built-in statistics screen provides a powerful tool to evaluate the overall performance of your geophones and strings.
**SPECIFICATIONS: SMT-300 / 350**

**Measurement Capability**
- **Natural frequency**
  - Range: 1 to 100 Hz
  - Accuracy: 8 to 14 Hz ± 0.5% of the measured value. Other: ±2% of the measured value or ±5 Hz, whichever is greater.
  - Display resolution: 0.01 Hz

**Coil Resistance**
- Range: 20 to 99,999 Ω
- Accuracy: ±1% or ±1 Ω, whichever is greater
- Display resolution: 1 Ω

**Damping**
- Range: 0.10 to 0.85
- Accuracy: ±1% of the measured value
- Display resolution: 0.001

**Sensitivity**
- Range: 0 to 999 V/m/s (0 to 25.37 V/in/s)
- Accuracy: ±2%
- Display resolution: 0.1 V/m/s (0.003V/in/s)

**Harmonic Distortion**
- Range: 0 to 20%
- Accuracy: ±10% of the measured value or ±0.01% distortion. Whichever is greater
- Display resolution: 0.01%

**Impedance**
- Range: 20 to 200k Ω

**Leakage Test**
- Range: 1 to 100 MΩ
- Accuracy: ±5% of measured value after user calibration

**Physical Characteristics**
- **Dimensions**: Approx. 260mm x 135mm x 96mm (10.2 in x 5.3 in x 3.8in)
- **Weight**: Approx. 2.75 kg (6.1lbs)

**Environmental Specifications**
- **Operating temperature range**: -20 to +50°C
- **Storage temperature range**: -20 to +40°C
- **Humidity**: 0-80% RH
- **Housing standard**: IP-65
**SHARP Hydrophone Tester**

- Suitable for testing a wide range of hydrophones
- Easy portability with electronics, acoustic source, and reference hydrophone all in one case
- Consistent results by eliminating air temperature and humidity variations through the use of a feedback control loop
- ¼-λ, acoustic, resonance pipe ensures strong signal amplitude at measurement point; sensitivity adjustment accessible on front panel
- Battery-powered for portability with external 12-Volt power connector provided
- Provision for GRIP Analyzer connection for resistance and impedance tests

Testing hydrophones in the field can be complicated with results strongly influenced by the level of the measurement drive signals. The Sensor Hydrophone Acoustic Response and Polarity (SHARP) tester allows a quick and reliable, in-field, acoustic measurement of hydrophone sensitivity and polarity.

**SPECIFICATIONS: SHARP**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>Selectable 0 V/bar, 1 V/bar–20 V/bar, or 10 V/bar–200V/bar</td>
</tr>
<tr>
<td>Polarity</td>
<td>Direct and clear indication using red/green LED's</td>
</tr>
<tr>
<td>Test Frequency</td>
<td>Approximately 170 Hz</td>
</tr>
<tr>
<td>Acoustic Test Level</td>
<td>Approximately 1 mbar RMS</td>
</tr>
<tr>
<td>Power</td>
<td>Internal, 12-V, 1.2-Ah battery, providing 6 hours of continuous testing</td>
</tr>
<tr>
<td></td>
<td>External, 12-V battery</td>
</tr>
<tr>
<td></td>
<td>Selectable 110-Vac or 230-Vac adapter/ charger</td>
</tr>
<tr>
<td>Physical Characteristics</td>
<td>Transport case</td>
</tr>
<tr>
<td></td>
<td>340mm x 185mm x 530mm (13.4 in x 7.3 in x 20.9 in)</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>12.6kg (27.7lb)</td>
</tr>
<tr>
<td>SHARP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>680mm x 260 mm x 160 mm (26.8 in x 10.2 in x 6.3 in)</td>
</tr>
<tr>
<td></td>
<td>Weight</td>
</tr>
<tr>
<td></td>
<td>5.1 kg (11.2lb)</td>
</tr>
<tr>
<td>Limited Warranty Period</td>
<td>180 days</td>
</tr>
</tbody>
</table>

Courtesy of PGS
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