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ION PRODUCTS

Sensor Testers



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[CHARGED WITH INNOVATION]™

Sensor Testers

ION's Sensor subsidiary is the leading designer and manufacturer of precision geophones used in seismic data acquisition and for industrial use. Sensor has access to the vast wealth of knowledge acquired and developed by the ION group of companies. This valuable asset base, coupled with Sensor's own specialized skills and knowledge, provides unmatched diversity of technologies and innovation.



Since 1967 ION Sensor has been providing geophysicists worldwide with exceptional quality, precision geophones, testers and ancillary equipment.

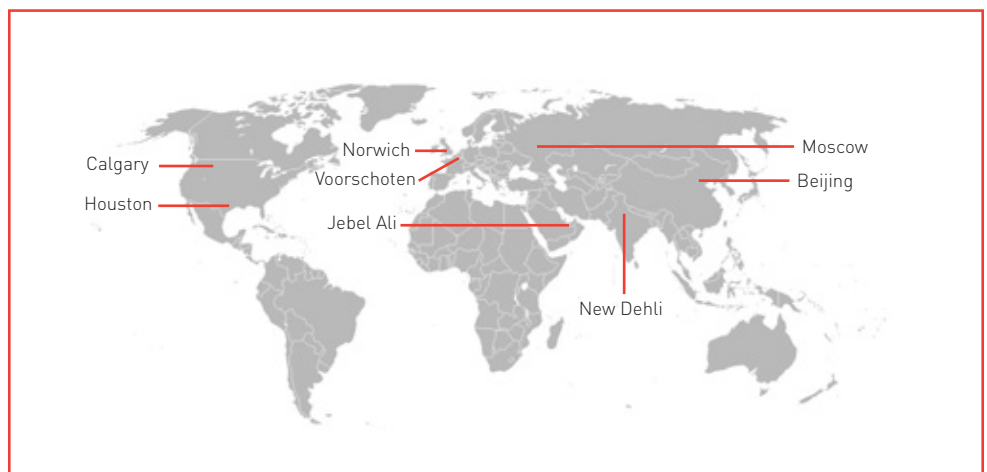
Our geophones, cables, cases, connectors and complete strings are designed to work flawlessly in every conceivable environment on earth; from the frozen tundra of the world's Polar Regions to the searing heat of the hottest deserts, and everywhere in between.

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.

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"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



"A quick and efficient method of checking Geophone string Resistance, Impedance, and Polarity

Sensor Testers



"This fourth generation of the SMT series geophone tester is equally at home in the laboratory or field environment "

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.

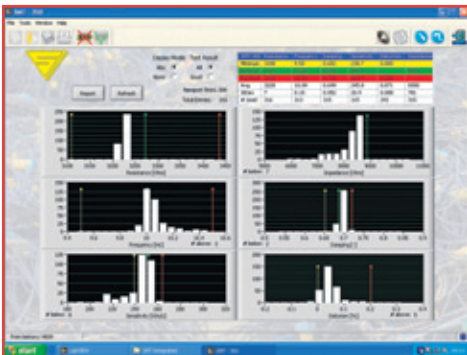
SMT-350 Tester software

- 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.



Sensor Testers



Courtesy of PGS

SPECIFICATIONS: SMT-300 / 350

Measurement Capability

Measured at +20°C

Natural frequency

Range

1 to 100 Hz

Accuracy

8 to 14 Hz $\pm 0.5\%$ of the measured value.

Other: $\pm 2\%$ of the measured value or ± 5 Hz, whichever is greater.

Display resolution

0.01Hz

Coil Resistance

Range

20 to 99,999 Ω

Accuracy

$\pm 1\%$ or $\pm 1 \Omega$ whichever is greater

Display resolution

1 Ω

Damping

Range

0.10 to 0.85

Accuracy

$\pm 1\%$ of measured value

Display resolution

0.001

Sensitivity

Range

0 to 999 V/m/s (0 to 25.37 V/in/s)

Accuracy

$\pm 2\%$

Display resolution

0.1 V/m/s (0.003V/in/s)

Harmonic Distortion

Range

0 to 20%

Accuracy

$\pm 10\%$ of measured value or $\pm 0.01\%$ distortion.

Whichever is greater

Display resolution

0.01%

Impedance

Range

20 to 200k Ω

Leakage Test

Range

1 to 100 M Ω

Accuracy

$\pm 5\%$ 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

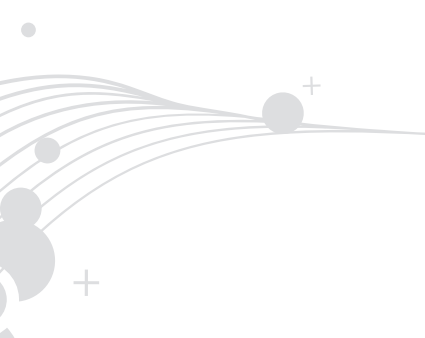
0-80% RH

Housing standard

IP-65



Courtesy of PGS



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
- $\frac{1}{4}$ - 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

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





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