

Geophones Seismic Sensors



Ahead of the Curves

Geophones

56-5

JF-200X

+ +

// A COMPLETE PRODUCT LINE

Sercel has a long history in being at the forefront of developing new cutting-edge technology. Setting new standards for sensors is no exception. Our advanced recording systems are capable of precision measurement for all of today's seismic requirements for the highest reliability, consistent quality and robust operational field efficiency.

In addition to design and manufacturing of seismic sensors, Sercel is committed to testing all products to maximize quality control. We ensure that every sensor is tested and qualified to meet the requirements for each specific project.

As the leading designer and manufacturer of precision sensors, Sercel provides a diversified sensor portfolio of field-proven sensor equipment for any environment and any project condition.



// ANY SURVEY CONDITION



// ANY ACQUISITION SYSTEM



428XL

UNITE

508XT





SG-5 is a new geophone featuring a high-sensitivity and a low natural frequency. This new sensor offers comparable output sensitivity to an array of geophones while providing lower frequency recording capabilities down to 5Hz.

Especially designed for single sensor application, SG-5 is particularly adapted for microseismic operations in combination with UNITE but also fully compatible with existing Sercel 428XL cable system.

| At 22°C | SG-5 |
|-----------------------|----------------|
| Natural frequency | 5Hz ± 7.5% |
| Distortion | ≤0.1% |
| Sensitivity | 80 V/m/s± 5% |
| Operating Temperature | -40°C to +80°C |
| Coil resistance | 1850Ω ± 5% |
| Tilt | 0° to 10° |
| Open Circuit Damping | 0.6 ± 7.5% |

Specifications subject to change without notice







The SG-10 was developed utilizing rare-earth magnet technology to achieve very low distortion and the highest tilt tolerance in the industry.

This technology, coupled with a specific magnetic geometry, results in one of the most advanced geophones in the seismic industry.

| SG-10 | | |
|-----------------------|----------------------|--|
| Natural frequency | 10 Hz (± 2.5%) | |
| Distortion | < 0.075% | |
| Intrinsic sensitivity | 22.8 V/m/sec (±2.5%) | |
| Operating Temperature | -40°C / +70°C | |

Low Distortion



JF-20DX CONVENTIONAL GEOPHONE SENSOR

// CUSTOMIZED SOLUTIONS Bespoke manufacturing

// HIGHEST RELIABILITY

Demanding Validation Process

// EXTREME WORKING CONDITIONS

Operating Temperature: -40°C / +70°C

The JF-20DX Geophone is well-suited for a variety of applications including oil exploration, mining, engineering and scientific research. Available in two different cases, land or marsh, the JF-20DX also has a selection of optional frequencies: 10 Hz, 14 Hz, 28 Hz and 40 Hz.

JF-20DX

Recognized for its high level of reliability, this geophone is capable of increasing the productivity and efficiency of seismic crews. The JF-20DX is built under strict quality control processes to ensure consistent performance in even the roughest environments, as well as a long operational life.

| | JF-20DX-10 | JF-20DX-14 | JF-20DX-28 | JF-20DX-40 |
|----------------------------------|---------------|------------|------------|------------|
| Natural frequency (± 5%) | 10 Hz | 14 Hz | 28 Hz | 40 Hz |
| Distortion | < 0.2% | | | |
| Intrinsic sensitivity (± 5%) | 28 V/m/s | 28 V/m/s | 39 V/m/s | 42 V/m/s |
| Nominal sensitivity @ 70% (± 5%) | 20.1 V/m/s | 20.1 V/m/s | 28 V/m/s | 30.4 V/m/s |
| Operating temperature | -40°C / +70°C | | | |

SGHT-15



Temperature range up to 205°C

// HIGH PERFORMANCE

High sensitivity geophone : 52.0 V/m/s

// HIGH RELIABILITY

Strict validation process : 500h@205°C

The SGHT-15 is a new high temperature omni-tilt geophone. Qualified up to 205°C, it is compatible with all vsp tools in the market.

GeoWave® II

Its high sensitivity specifications make it also well adapted to microseismic and hydraulic fracturing monitoring surveys.

| | Nominal | Horizontal | 0° to 180° |
|--|-----------------------------|---------------------|---------------------|
| Natural frequency | 15 Hz | ± 5% | -5% to +15% |
| Coil resistance | 2350 Ω | ± 5% | ± 5% |
| Sensitivity | 52.0 V/m/s
(1.32 V/in/s) | -15% to +5% | -15% to +5% |
| Open circuit damping
(without damping resistance) | 0.50 | -15% to +15% | -20% to +15% |
| Distortion
(@ 15 hz & 1.8 cm/s pk-pk)
(@ 15 hz & 0.7 in/s pk-pk) | | ≤ 0.2% | ≤ 0.9% |
| Spurious frequency | | ≥ 365 Hz | ≥ 280 Hz |
| Coil excursion pk-pk | | <3.0 mm (<0.118 in) | <0.6 mm (<0.024 in) |
| Moving mass | 7.4 g | | |

Note: Sercel reserves the right to change its specifications without prior notice. All specifications are typical at 20° C

Land strings

Exceeding today's operational field requirements and meeting customer demands, our strings are custom-built to fit any project, when you need it, where you need it, at anytime. Our high-performance cases are designed to withstand a wide range of environmental conditions are functional in diverse land areas such as desert, urban, forest and arctic regions.



STRING TYPES



CONNECTOR TYPES



LINE CABLE TYPES

| | | Diameter | Breaking strength | Spec. weight |
|---|---------------------------------------|-----------|-------------------|--------------|
| | Dry | Ø 5.3 mm | 90 daN | 34 kg/km |
| | Waterproof (-15m) | Ø 5.3 mm | 90 daN | 34 kg/km |
|) | Waterproof
High protection (-15m)* | Ø 6.35 mm | 90 daN | 44 kg/km |

* with BG4 case type only

CASE TYPES

↑ LINE CABLE

| | Tripod | Steel spike | Brass spike | |
|-----|--------|-------------|-------------|---|
| BG3 | T | T | T | Compatible with
JF-20DX sensors
and SG-10 sensors |
| BG4 | | - | | Reinforced case type
Specially designed for
SG-10 sensors |

Marsh strings

Our commitment to meet and surpass customer needs is answered by the development of a dedicated sensor string for marsh zones. It has been specially designed for easily burying the sensors in the ground and getting the best coupling. Designed to function in wet conditions, our marsh zone sensor strings include a specific metal casing for ice and snow conditions. Our custom-built strings are designed to fit any project, when you need it, where you need it, at anytime.



STRING TYPES



CONNECTOR TYPES



CABLE TYPES

| T | Drap | | Diameter | Breaking strength* | Weight |
|-----------------|-------|------------|----------|--------------------|----------|
| Line 🧖
cable | cable | LINE CABLE | Ø 5.3 mm | 90 daN | 34 kg/km |
| | | DROP CABLE | Ø 7.9 mm | 110 daN | 68 kg/km |
| | | | | | |

* Bulk Only

JUNCTION TYPE





Assembled

The T-Junction is an assembly enabling easy repair of the line or the drop cable

CASE TYPES

Marsh conditions

Standard casing

Snow and ice conditions

Casing reinforced with a metal sleeve

Geophone tester SGT-II



// HIGH ACCURACY

Temperature correction factor

// IMPROVED ERGONOMICS

Sunlight & backlight LCD PC connection capability Simple user interface

// ERROR PROOFING

Green or Red LED status Sound & LCD text results Automatic upload/download

SGT-II is the new portable and universal geophone string tester. Equipped with a temperature sensor, as to apply correction factors for the highest accuracy. Designed for in-field testing, this rugged generation integrates new error proofing features & improved ergonomics.

| SGT-II | | |
|-----------------------|------------------|--|
| Battery autonomy | 14h @ 25°C | |
| Storage capacity | 20 000 + records | |
| Operating temperature | -20°C / +50°C | |
| Protection | IP67 | |



Hydrophone tester SGT-H



// HIGH FLEXIBILITY

Multi-component sensors compatible Easy transportable solution

// HIGH ACCURACY Acoustic test chamber included

SGT-H is a transportable hydrophone tester.

Designed with a test chamber, SGT-H can manage acoustic and electrical measurements for single hydrophones or multi-component sensors.



SGT-H

10% / 90 %

+15°C/+25°C



• Sensitivity

Natural frequency • Damping

- Resistance
- Leakage

| Humidity |
|-----------------------|
| Operating temperature |

Seismometers

L-4 High-Sensitivity Seismometer



The L-4 is designed specifically for scientific studies, yet has the ruggedness required for small petroleum exploration work. L-4 is available with or without calibration coils and may be obtained as a single element or as a 3D package.It is also available either in vertical or horizontal version.

| Natural frequency | |
|-------------------|-------|
| L-4C | 1 🗤 - |
| L-4C 3D | |
| L-4A | 2 Ца |
| L-4A 3D | 2 П2 |

L-10 Digital Grade Industrial Subminiature geophone



The L-10 geophone is a small rugged unit with a high output. It is packaged in a high strength Nylon case for the lowest weight specifications.

| Natural frequency | | |
|-------------------|--------|--|
| L-10 AR | 10 Hz | |
| L-10 AR | 14 Hz | |
| L-10 B | 4.5 Hz | |

L-22 Miniaturized Seismometer



The L-22 unit is a miniature, low frequency, land seismometer which is available in a 2.0 Hz model. It is a precise instrument, and maintains close frequency tolerance with tilt and temperature variation. L-22 is available as a single or 3D unit.

| Natural frequency | | |
|-------------------|------|--|
| L-22 | 211- | |
| L-22 3D | | |

L-28 Low distortion, Long-Travel geophone



The L-28 geophone features the highest fidelity available in low-frequency velocity type transducers. The high quality long travel geophone is available either in vertical or horizontal version.

| Natural frequency | | |
|-------------------|--|--------|
| L-28 LB | | 4.5 Hz |
| | | |





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