



Operational Features

- VHR seismic source for fresh water
- Water depths from 2 to 1500 m
- Penetration to 400 ms below bottom
- Vertical resolution up to 30 cm
- Overall performance depending on acoustic characteristics of vessel, geology and acquisition conditions

Applications

- Lake & river surveys
- Port & harbour surveys
- Site & route surveys
- Inland water engineering
- Mineral exploration

How does a sparker work in fresh water?

The four electrode modules (100 tips each) are enclosed in flexible sleeves. Salt water is pumped through these sleeves to provide the saline environment which is needed to create a plasma bubble at the sparker tips. The circulating salt water also removes the gases generated at each discharge. The closed circuit comprises an onboard salt water reservoir and pump, supply and return hoses to and from the source, and a manifold system within the source frame.



INNOVATIVE Preserving Electrode Mode

The Geo-Source 400 FW has been designed for operation with the fixed installation Geo-Spark 6 kJ or the new portable Geo-Spark 7.5 kJ pulsed power supply (PPS) using the patented 'Preserving Electrode Mode'.

This mode uses a **NEGATIVE** electric discharge pulse instead of a positive pulse.

(Please note that this negative pulse is **NOT** the same as the simple reversal of the positive polarity of a 'standard'

Essential Advantages

The Preserving Electrode Mode **reduces the wear of the electrode tips to practically zero.**

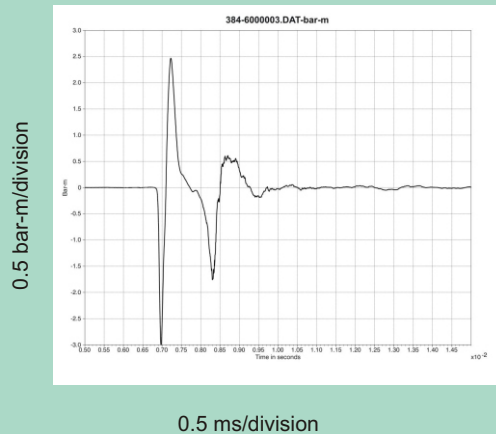
- So you can continuously acquire data for days, weeks, months..... with **no tip maintenance.**
- Zero tip wear is essential for the **acoustic repeatability** of the pulse, which depends largely on a constant, unaltered electrode surface.
- Since you don't need to trim tips, the electrodes last practically forever: therefore **fewer consumables** are required and less money is tied up in stock.

Examples of Records

To see examples of our sparker records, please visit the 'Downloads' page on our website:

www.geo-spark.com

Signature 400 tip at 4 kJ at -5.6 kV



Total Control of All Parameters

The advanced Geo-Source 400 FW design gives you total control of:

- Joules per tip
 - Number of tips actively in use
 - Source depth and geometry
- Two/four floats provide a stable towing configuration and insure the proper depth of the electrode tips at 20 cm below the surface. This is critical to achieve constructive interference between the primary pulse and its own sea-surface reflection (surface ghost).
 - The electrode modules are evenly spaced in a planar array of 1.0 m x 2.0 m. This geometry not only enhances the downward projection of the acoustic energy, it also reduces the primary pulse length, since all tips are perfectly in phase.
 - Four individually powered electrode modules of 100 tips each allow the distribution of energy from the pulsed power supply over 100, 200, 300 or 400 tips.
 - Each tip has an exposed surface of 1.4 mm², suitable for ten Joules per tip.
 - The standard electrode configuration with the Geo-Spark 6 kJ consists of four electrode modules (400 tips). This configuration gives an excellent pulse over the 1000 - 4000 Joules power range.
 - For higher frequencies and less penetration at energy levels below 1000 Joules however, a configuration consisting of only two electrode modules (200 tips) is recommended.

HV Power / Tow Cable

The Geo-Source 400 FW is towed by a very high quality, Kevlar-reinforced, coaxial power/tow cable, with stainless steel Kellum towing grip. This very sturdy, dedicated HV cable contains **4 x 10 mm² inner leads** (negative HV) plus a **40 mm² outer braiding** (ground). It is designed to have a very low self-inductance in order to preserve the high dI/dt pulse output of the Geo-Spark PPS.

The wet side of the cable is terminated with four special HV connectors to the electrode modules and a ground connector to the frame. Connecting or disconnecting the cable to the Geo-Source 400 FW takes 10 minutes.

Coaxial Cable = 100 % Safety + Zero Electric Interference



The coaxial structure of the HV power cable is 100 % safe and reduces all electromagnetic interference to the absolute minimum.

HV Cable Reel with Patch Panel & Rotational High Voltage Contacts

This new cable reel features two rotational HV contacts plus the patch panel.

The axial connection allows the reel to be operated without disconnecting the high voltage deck lead.

The patch panel enables you to change the electrode configuration **without recovering the source to deck**.

