APPLIED ACOUSTICS
Underwater Technology



High Power Sparker Systems

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The Delta System

for deeper penetration geophysical surveys

The Delta System is the most powerful sub-bottom profiling system in the Applied Acoustics' range. It consists of the Delta Sparker, a powerful sparker for deep penetration surveys, configured on a triangular tow- frame, powered by either a 6000 Joule or 12,000 Joule seismic energy source from the CSP-S range of power supplies.

Delta Sparker Sound Source

The Delta Sparker is designed for deeper penetration sub-bottom profiling. It incorporates a simple adjustment for optimum array depth to achieve the best possible pulse shape and different arrangements of sparker tips, single or multiple, to increase resolution or penetration as required.

As a multi-tip sparker array the Delta can be used in UHR multi-channel seismic surveys utilising 24 or 48 channel streamers such as during geohazard assessment, construction projects or shallow target 2D exploration.

Key Features

- Powerful sparker for deep penetration surveys
- Triangular tow frame supplied with floats
- Adjustable tow depth
- Replaceable electrodes for easy field maintenance

CSP-S Energy Source

The CSP-S is a compact energy supply that converts mains voltage to the high voltage power required to energise the Delta Sparker seismic sound source. Both the 6000 and 12000 Joule variants are supplied in a single robust transit case for ease of movement between vessels of opportunity.

The CSP-S units employ a high current and voltage solid state (semi-conductor) discharge method and meet EC emissions regulations enabling interference-free field units. The energy sources also have a proprietary 'Variable Input Power Circuitry' for a 'soft start', initially easing generator load, and are the ideal choice for marine applications where increased penetration of the seabed is required.

Key Features

- High voltage, high current semiconductor switch used
- All settings externally selectable
- No requirements for additional capacitor banks
- Portable between survey vessels of opportunity
- Multiple layers of safety and protection features



Technical Specification

DELTA SYSTEM COMPONENTS

Delta Sparker
CSP-S6000 or CSP-S12000
HVC 3500 High Voltage Cable, 75m standard

DELTA SPARKER SEISMIC SOUND SOURCE

PHYSICAL

Dimensions	2550mm (L) x 350mm (W) x 250mm (H) Can be split in two for ease of shipping
Weight	50kg approx
Frame material	Stainless steel
Buoyancy	FA6 floats x 2
Depth of tow	Adjustable
Connector	RMK 1/0 complete with locking collar

ELECTRICAL INPUT

Recommended energy	1500 – 12,000J/shot
Maximum energy	12,000J/shot
Operating voltage	3000-4000V
Number of tip locations	3 (yellow, blue, red) Operator selectable
Maximum number of tips	9 single: 3(3 x 1) 135 multi-tip: 3(3 x 15)

SOUND OUTPUT

Source level	Typically 226dB re 1µPa at 1 metre with 6000J
Frequency range	300Hz – 5kHz
Pulse length	0.3 – 5.0ms Dependent on tips and power applied
Penetration	800ms achieved

CSP-S6000/CSP-S12000 SEISMIC ENERGY SOURCE

PHYSICAL

Size	CSP-S6000: Transit Case with wheels (12U) with cover in place and handles flat: 68cm(H) x 58cm(W) x 92cm(D) CSP-S12000: Transit case (21U) with covers in place and lifting eyes/handles flat: 116cms(H) x 69cms(W) x 96cms(D)
Weight	CSP-S6000: Case and cover: 114kg CSP-S12000: Case and cover: 183kg

ELECTRICAL SPECIFICATION

Mains Input	110 or 240Vac (fixed) 45-65Hz@5.0kVA single phase 3 pin connector Variable input power circuitry (AVIP) 'soft start' circuitry
Voltage Output	2500 to 3950Vdc, 4 pin interlocked connector. Solid state semi-conductor discharge method
Output Energy	Externally selectable in Joules (20 increments) CSP-S6000:300-6000J CSP-S12000: 600-12000J
Charging Rate	2500J/second for continuous operation at 0-45°C
Capacitance	CSP-S6000: 800µF, 10^8 shot life CSP-S12000: 1536µF, 10^8 shot life
Trigger	+ve key opto isolated or isolated closure.
Repetition rate	6pps max. Limited by charge rate, energy level and sound source rating

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With on-going research and development in cutting edge technology and acute awareness of current and future industry needs, our commitment to our customers is second to none. We are equally determined to aid and assist our customers worldwide with a network of partners, suppliers and overseas Support Centres. Together, we offer engineering excellence, trusted products and a first class professional service on a global scale.

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