Geo-Spark 6 kJ & 16 kJ

Fixed Installation Oceanographic Power Supplies

Geo-Spark 16 kJ

Range & Application

6 kJ: typically used with Geo-Source 800 sparker in water depths from 2 to 2500 m both in combination with multi-channel or single channel data acquisition .

16 kJ: designed for the Geo-Source 1600 mega-sparker with proven operation in water depth of 5000 m.

Both PPS models can also power all smaller sparkers models, including the Geo-Source 200 and 400 fresh water sparkers

100% Safety Features

All possible safety features have been integrated into the systems to safeguard against potential human error.

- High voltage (HV) can only be activated when the HV connection box is completely closed.
- If the HV connection box is opened, even partially, during operation, the HV will automatically switch off and the unit will generate a final trigger to discharge the capacitors.
- Similarly, when the HV is switched off normally by pushing the red stop button, an automatic final pulse will discharge the capacitors.
- When the HV connection box has been opened completely, both poles (zero and negative) will automatically be shorted.
- The system contains multiple internal bleed-off resistors to eliminate any possibility of unwanted charging effects.

Operational Features

- **Selectable capacitance**
- **Online variable voltage**
- **6000 / 16000 J real power**
- **No electrical oscillations**
- **User-friendly & 100% safe**
- **Modular architecture**
- **All sub-units can be hand-carried**

Cutting-Edge Pulsed Power Technology

The Geo-Spark 6 kJ & 16 kJ are revolutionary high voltage (HV) power supplies based on cutting-edge 'pulsed power' technology. The systems use an extremely reliable, state-of-the-art thyristor switch that can generate very short (100 - 200 µs) high voltage pulses of up to 20 kA (6 kJ) / 45 kA (16 kJ) at -5.6 kV.

Preserving Electrode Mode

These pulsed power supplies are fundamentally different from any other HV power supplies. They have been designed specifically to power the Geo-Source range of multi-tip sparkers in our patented 'Preserving Electrode Mode'. In this mode the electrodes have a negative potential with respect to the source frame (= ground), thereby reducing electrode wear to almost zero.

Negative Electric Discharge Pulse

There is no other unit commercially available that allows you to generate a negative high voltage pulse with such a high dI/dt ratio.

No Electrical Oscillations

The pulse output has NO electrical oscillations, which affect the acoustic signature. The integrated capacitor banks contain 12 (6 kJ) or 32 (16 kJ) indestructible 32 µF capacitors rated for more than 200 million discharges.
For example, a one second discharge rate would give continuous work for six YEARS.

Geo-Spark 6 kJ

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Flexible Energy Output

The systems feature a very flexible energy output from 100 to 6000 / 16000 Joules that can be modified while online. This is achieved by:

- varying the operating voltage (selectable from -2000 V to -5600 V);
- varying the capacitance (6 kJ: selectable from 64 µF to 384 µF); (16 kJ: selectable from 64 µF to 1024 µF)

Microprocessor Control

All internal initialising and safety procedures are microprocessor-controlled and the current system status can be monitored via a comprehensive series of LEDs. This provides an easy and straightforward system operation that is basically limited to the following actions:

- switching on/off the control unit (230 V/50-60 Hz single phase);
- selecting the capacitance and voltage;
- activating/de-activating the HV generation.

Triggering

Remote triggering of the unit is implemented by a TTL pulse, which is internally converted into a fibre-optic signal to the thyristor trigger device. There is no need for any external opto-isolator on the trigger line. During standby between survey lines, the unit will NOT trip - it will slowly bleed off but will remain ready for the next line.

Safe and Intuitive Operation

All connections, command buttons, switches and status LEDs are front-mounted to ensure direct safe access and intuitive operation.

Modular Architecture

The systems comprise four main types of modules, configured to customer's needs:

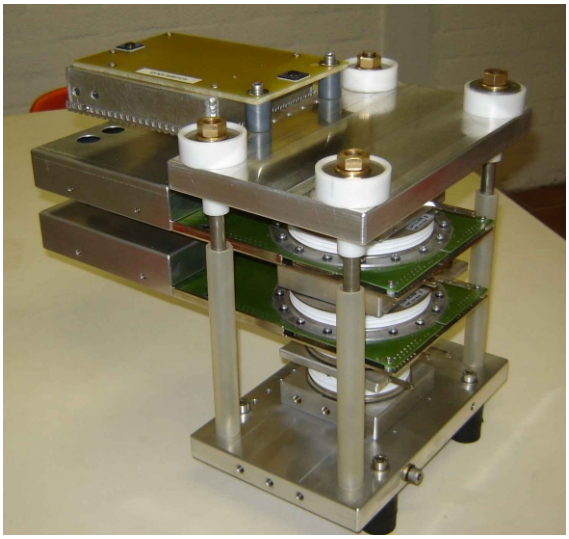
- control unit, containing the thyristor stack and main control system;
- low voltage pulse unit;
- high voltage transformer/rectifier unit;
- 6 kJ: three capacitor banks of 2 x 64 µF each
- 16 kJ: eight capacitor banks of 2 x 64 µF each

Quality Built to Last

These pulsed power supplies are built to last, electronically and mechanically. The housing and frame consist of anodised aluminium and stainless steel 316. Rubber shock absorbers support all the vibration-sensitive components inside the housing.

Low Power Consumption

The Geo-Spark 6 kJ & 16 kJ systems can be operated from a 380 V/32 A mains socket, or from a 380 V/10 kVA generator, and do not draw excessive peak currents.



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