



Modular Architecture Pulsed Power Supplies for oceanic waters.

## Description

### CUTTING EDGE PULSED POWER TECHNOLOGY

The Mega-Spark 48 kJ has been developed using the fully proven HV charging technology of the 2000 X series. The system features a stunning charging capability of 15 kJ/ sec allowing to shoot at 48 kJ full power every 4 seconds.

The system is very suitable for the LF Mode, where the towing depth of the Geo-Source is tuned to enhance the LF implosion pulse.

### 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  $dl/dt$  ratio.

### FLEXIBLE ENERGY OUTPUT AND REVOLUTIONARY PULSE SHAPING

The system has a selectable energy output from 800 J to 48 kJ, which can be modified by:

- selecting the charging voltage from -2000 V to - 4000 V during operation
- changing the total capacitance from 256 to 5120  $\mu$ F with 256  $\mu$ F increments

Since the energy output can be calculated as  $2 E = 0.5CV^2$ , this creates the option to generate the same energy with different voltage/capacitance combinations. This effectively changes the shape of the pulse, while maintaining the same pulse energy.

### QUALITY BUILT TO LAST

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

## Operational Features

- Revolutionary pulse shaping.
- Selectable capacitance in steps of 256  $\mu$ F.
- Selectable charging voltage from 2 to 4 kV.
- 800 J to 48 kJ real power.
- No electrical oscillations.
- User-friendly & 100% safe.
- All subunits can be hand-carried.

## HIGH VOLTAGE POWER SUPPLIES

### Operational 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, when not in use.

### User Interface

#### SAFE AND INTUITIVE OPERATION

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

### Other remarkable features

#### HIGH QUALITY DRY CAPACITORS

The pulse output has NO electrical oscillations, which affect the acoustic signature. Each capacitor bank contain 2 groups of 256  $\mu$ F, which can be activated independently. The capacitors are rated for more than 200 million discharges. For example, a one second discharge rate would give continuous work for six YEARS.

#### 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

#### POWER CONSUMPTION

At the maximum HV charging rate of 15 kJ /sec, the Mega-Spark 48 kJ systems can be operated from any 32 A, 3 phase 380 - 440 V, 50 - 60 Hz mains power source and does not draw excessive peak currents. This translates into 65 kVA , if powered from a generator

### Specification

<b>Mains Power</b>	220 - 240 VAC (16A) 380 - 440 VAC (32A) 65 kVA generator
<b>Energy output</b>	selectable from 800 to 48,000 J
<b>Operational depth</b>	up to 10000 m
<b>HV charging capability</b>	15000 J / sec
<b>Other remarkable features</b>	<ul style="list-style-type: none"> <li>- Indestructible 25 kA -5.6 kV discharge Thyristor</li> <li>- Very high <math>dI/dT</math>, NO electrical oscillations</li> <li>- Fully ground-referenced, 100 % safe</li> <li>- Humidity and Temperature protection</li> <li>- State-of-the-art micro-processor based control and monitoring system</li> </ul>
<b>Recommended source</b>	<a href="#">Geo-Source Triple 800</a> sparker in combination with multi-, or single channel data acquisition.