



crosshole equipment

depths shallower than 60 m

power supply



IPG800 | Impulse Generator

source



BIS-SH-DS | S-Wave Source

receiver



BGK5 | Borehole Geophone

description

The impulse generator IPG800 is the high voltage supply to the seismic borehole source BIS-SH-DS. The energy is stored in capacitors which discharge through a mechanical switch. The lightweight IPG800 is housed inside a robust Peli TM case. The IPG800 is operated by a remote control unit (RCU) which is used to start a pre-defined sequence of shots or to stop the operation. The RCU is connected to the seismograph to send an accurate time break. The IPG800 can be used for seismic S-wave tomography also.

The borehole source BIS-SH-DS generates horizontally polarized shear waves (SH) and compressional waves (P). The seismic signals are highly repeatable. The source works in dry or water filled boreholes and can be used in vertical or horizontal boreholes. Energy released by the IPG800 discharges through a system of coupled coils. They generate a mechanical impact to the borehole wall that releases seismic waves. The borehole source is coupled to the borehole wall by a pneumatic clamping system (inflatable bladder). The orientation of the source is controlled from surface by a torsionally stiff hose.

The borehole geophone BGK5 is used to receive P- and S-waves in dry or water filled boreholes. The borehole geophone BGK5 consists of four horizontal sensors, separated by 45° intervals, and one vertical sensor. The geophone is coupled to the borehole wall by a pneumatic clamping system (inflatable bladder). Air is supplied to the BGK5 through an electro-pneumatic hybrid cable with a Kevlar tension string. The cable is terminated by a connector to the seismograph. Alternatively, the BGK3/7 can be used for crosshole applications.

technical details

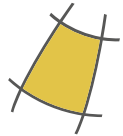
Impulse voltage: 800 V
Impulse energy: 1000 J
Power supply: 2 x 12 V (car batteries)
Shot release: Single or continuous (5/10 shots)
Repetition rate: 10 s
Dimensions: 53 x 43 x 23 cm
Weight: 15 kg
Special features: Impulse counter, test trigger, emergency OFF button
RCU: Start/stop operation, trigger output, emergency OFF button

Generated wave types: SH/P
Signal frequencies: Up to 4 kHz (depending on geology and borehole distance)
Operational depth: Up to 60 m
Source length: 880 mm
Source diameter: 65 mm
Source weight: 8.5 kg
Cable weight per metre: 665 g
Borehole diameter: 75-100 mm (or larger if spacers are used)
Clamping system: Inflatable bladder
Orientation: Torsionally stiff hose
Depth indicator: Cable marking every 2 m
Connector: To impulse generator IPG800
Storage: On drum

Natural sensor frequency: 10 Hz (others on request)
Sensor arrangement: 4 horizontal (45°)/1 vertical
Operational depth: Up to 100 m
Receiver length: 600 mm
Receiver diameter: 51 mm
Receiver weight: 2.8 kg
Cable weight per metre: 145 g
Cable strength: 2150 N
Borehole diameter: 75 mm (or larger if spacers are used)
Clamping system: Inflatable bladder
Depth indicator: Cable marking every 2 m
Connector: To any seismograph
Storage: On drum

crosshole equipment

depths greater than 60 m



power supply



IPG5000 | Impulse Generator

source



BIS-SH | S-Wave Source

receiver



BGK3/7 | Borehole Geophone

description

The impulse generator IPG5000 (formerly named IPG1005) is the high voltage supply to the seismic borehole sources BIS-SH and SBS42. The energy is stored in a large capacitor bank which discharges through a mechanical switch. The IPG5000 is controlled by a remote control unit (RCU). The RCU allows the user to start the seismic survey by a single or continuous shot release. The repetition rate is selectable under continuous operation. The RCU is connected to the seismograph to send an accurate time break.

The borehole source BIS-SH-DS generates horizontally polarized shear waves (SH) and compressional waves (P). The seismic signals are highly repeatable. The source works in dry or water filled boreholes and can be used in vertical or horizontal boreholes. Energy released by the IPG800 discharges through a system of coupled coils. They generate a mechanical impact to the borehole wall that releases seismic waves. The borehole source is coupled to the borehole wall by a pneumatic clamping system (inflatable bladder). The orientation of the source is controlled from surface by a torsionally stiff hose.

The borehole geophone BGK3 is used to receive P- and S-waves in dry or water filled boreholes. The borehole geophone BGK3 consists of a tri-axial sensor whereas the BGK7 consists of six horizontal sensors, separated by 30° intervals, and one vertical sensor. The geophone is coupled to the borehole wall by a pneumatic clamping system (inflatable bladder). Air is supplied to the BGK3/7 through an electro-pneumatic hybrid cable with a Kevlar tension string. A magnetic compass shows azimuthal deviation to North and can be used to get the orientation of the geophone in the borehole. The cable is terminated by a connector to the seismograph. Alternatively, the BGK5 can be used for crosshole applications.

technical details

Impulse voltage: 5000 V
Impulse energy: 1000 J
Power supply: 230 V/110 V
Shot release: Single or continuous
Repetition rate: 8 s
 (or freely selectable between 3 and 8 s)
Dimensions: 52 x 32 x 53 cm
Weight: 60 kg
Special features: Impulse counter, test trigger, emergency OFF button, intern/extern operation
RCU: Single or continuous shot release, impulse counter, test trigger, trigger output, emergency OFF button

Generated wave types: SH/P
Signal frequencies: Up to 4 kHz
 (depending on geology and borehole distance)
Operational depth: Up to 100 m
Source length: 880 mm
Source diameter: 65 mm
Source weight: 8.5 kg
Cable weight per metre: 665 g
Borehole diameter: 75-100 mm
 (or larger if spacers are used)
Clamping system: Inflatable bladder
Orientation: Torsionally stiff hose
Depth indicator: Cable marking every 2 m
Connector: To impulse generator IPG5000
Storage: On drum

Natural sensor frequency: 30 Hz
 (others on request)
Sensor arrangement: Tri-axial (BGK3) or 6 horizontal (30°)/1 vertical (BGK7)
Operational depth: Up to 100 m
Receiver length: 705 mm
Receiver diameter: 50 mm
Receiver weight: 3 kg
Cable weight per metre: 145 g
Cable strength: 2150 N
Borehole diameter: 75 mm
 (or larger if spacers are used)
Clamping system: Inflatable bladder
Orientation: Magnetic compass (+/-2.5°)
Depth indicator: Cable marking every 2 m
Connector: To any seismograph
Storage: On drum

