



## Multi-channel SEISMIC STREAMERS

The SIG multi-channels streamers are dedicated to high resolution seismics.

The SIG 16 streamers do not require a french export licence. Depending on customers requirements, our streamers can also integrate other hydrophones of the market.

The active sections are configured with 4 to 24 channels in the analog version and 48 channels in digital version. Group spacing varies from 1 to 12.50 m.



- ⇒ **Config. to customers requirements**
- ⇒ **No export licence on SIG16 hydrophones**
- ⇒ **Small diameter**
- ⇒ **Short group spacing**
- ⇒ **Entirely customizable**

## MCsps deck unit

The Multi-Channel Streamer Power Supply MCsps interfaces the analog multi-channel streamer to any third party recording system, and provides the power for the preamplifier in head of the section, and also provides high quality analogue frequency filters and selectable analogue gains.

**Analog amplification:** Selectable amplification settings, typical 0 dB, 2 dB, 4 dB, 6 dB, 8 dB, 10 dB, 12 dB, 14 dB and 16 dB, or user defined.

This amplification is added to the amplification inside the head of the section.

**Analog frequency filtering:**

- High-pass filter : the low frequency noise is the most disturbing noise in the acquisition process, so the unit offers the possibility to apply 4 selectable high-pass filters.
- Low-pass filter : the LPF must be suited to the frequency range of the acoustic source, and can be user selected.

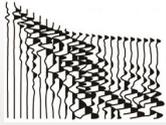
## SIG 16 multi-channel STREAMERS

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## Applications

- ⇒ **High resolution seismics for shallow sparker signal 200-2.000 Hz to boomers -10.000 Hz**
- ⇒ **or deep water air gun signal 10-400 Hz**



## Multi-channel SEISMIC STREAMERS

### DIGITAL SPECIFICATIONS

#### Analog Front end :

- ⇒ Independant variable gain for each channel
- ⇒ Adjustable in real time from 12 to 40 dB
- ⇒ 5th order low pass anti-aliasing filter
- ⇒ Bandwidth max 5 Hz to 16 kHz, TBD

#### ADC :

- ⇒ 16 bit Analog to Digital convertor
- ⇒ 86 dB signal to noise ratio
- ⇒ -97 dB total harmonic distortion
- ⇒ Sampling frequency from 1 kHz to 32 kHz

### Preamplifier

The signal generated by each group of hydrophones is pre-amplified, either at the head of the section in a cartridge, easy to plug into the head piece and easy to replace,



or at each group, inserted inside the section.

An integrated band-pass filter cuts off undesirable high frequencies and disturbances from the DC component. Bandwidth to be defined according to the customers global system.

### ARRAY CONFIGURATIONS

Hydrophones:	SIG 16 or market available hydros
Number of channels:	4 to 24 analog, to 48 digital
Hydros per group:	4 to 24
Hydros spacing:	0.15 to 1 m
Group interval:	1 to 12.50 m
Small diameter:	30 mm up to 16 channels, 41 mm to 48 channels
Density:	1.02 on standard
Type of tubing:	Polyurethane 1185A quality
Filling fluid:	Inert mineral oil
Preamplifier:	Single-ended or differential, depending on acquisition system requirement.
Frequency response:	10 to 10.000 Hz, depending on configuration and hydrophone used.
Acceleration compensation:	Achieved using SIG 16 hydrophones

### ULTRA LOW-NOISE PREAMPLIFIER

Depending on acquisition system requirement

Gain:	0 to 40 dB
Input/output:	Single ended or differential
Input impedance:	≥ 22 Mohms
Bandwidth:	1 Hz - 20 kHz
Current (mA@12V)	≤ 1 mA
Supply voltage:	± 5 V to ± 12 V

Energy source:  
**Air Gun 35 in3**

Sensor:  
**Streamer SIG  
16.24x24.350**

Acquisition:  
**DAAU24**

Courtesy:  
**J.-X. Dessa --  
UPMC/Géoazur**

