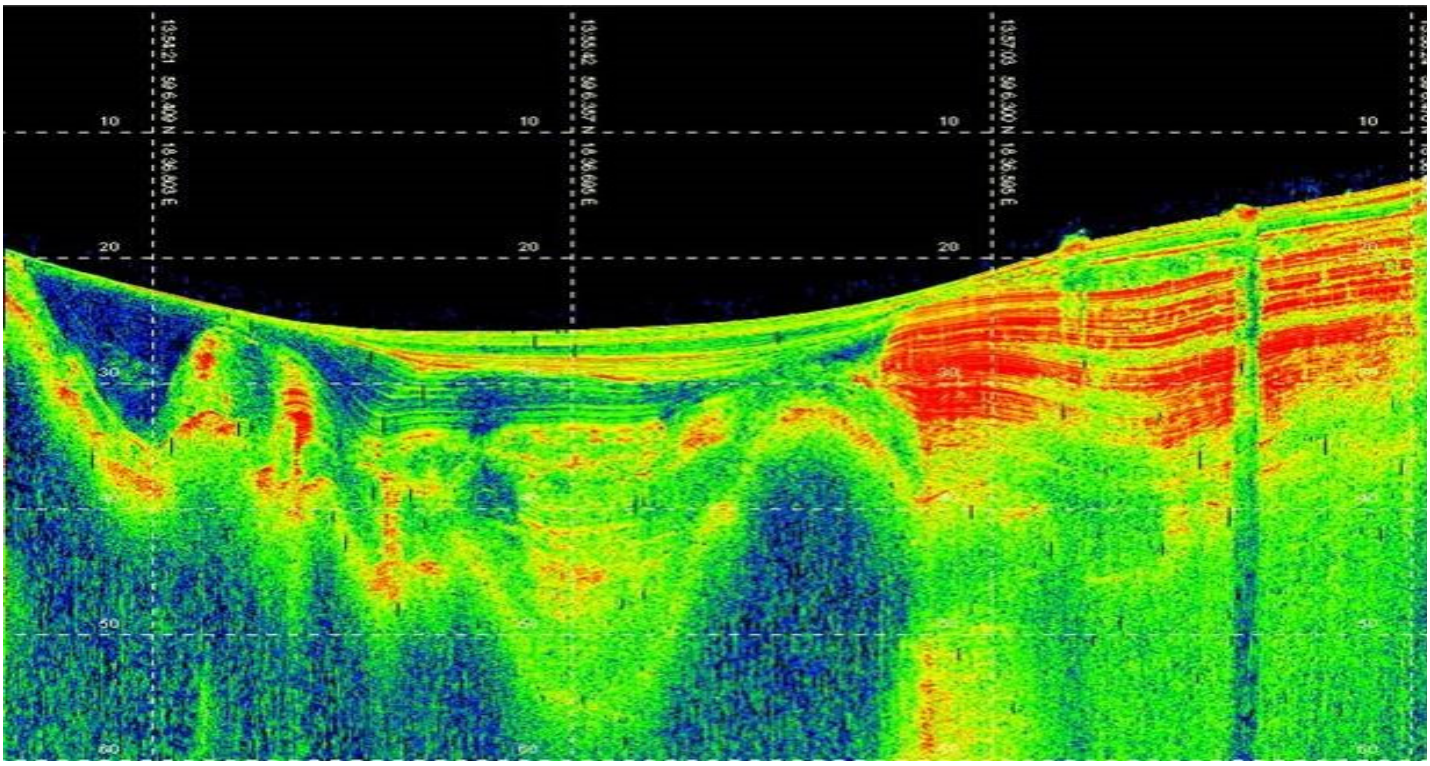
TOPAS PS40

KONGSBERG



PARAMETRIC SUB-BOTTOM PROFILER

TOPAS PS40 is designed for sub-bottom profiling with very high spatial resolution in water depths from less than 4 metres to >2,000 metres. The +80% relative bandwidth, low frequency signal is generated in the water column by non-linear interaction between two high frequency signals (centred symmetrically around 40 kHz). Similarly a sum frequency signal is also generated. However, only the low frequency signal is used for sub-bottom profiling.

System specification:
The Kongsberg TOPAS PS 40 parametric sub-bottom profiler (Standard and Modular versions) comprises the following units:

- **Transducer/hydrophone**
- 1 x 24 channels (Standard version)
- 3 x 24 channels (Modular version)
- Three-band receiving hydrophone
- **Transceiver Unit**
- Linear, switched mode power amplifier
- Low noise receiver with 24 bit ADC
- High dynamic range; >110 dB
- **Operator Console**
- MMI
- Real-time processing
- PC-based platform (Windows)

The parametric sources have the advantage of generating a low frequency signal beam with no distinct sidelobe structure. The beam tapers off smoothly, reducing the possibility of spurious signals due to sidelobes in the received signal.

The transducer may be hull mounted or mounted temporarily over the side. This means that no deployment or recovery of tow-fishes is required during the survey, which results in efficient survey time and higher positioning accuracy for the profile. Manoeuvrability of the vessel is also improved. In a “low noise” vessel, excellent profiling results are achieved even at survey speeds of +12 knots.

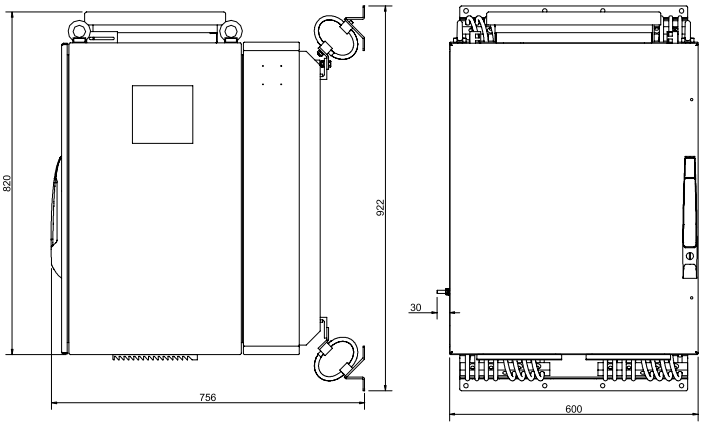
The system can operate with various signal waveforms for optimum performance. Typically Ricker pulses are used for very high resolution work, Chirp pulses are used for deep water, high penetration work and CW pulses are used for narrow band, frequency sensitive work.

The transmitted acoustic beam is electronically stabilised in both roll and heave (requires a vertical reference unit) ensuring that the insonified area on the sea floor is accurately positioned. The transmitter can be used in a sequentially beam steering mode covering a larger sector. This is of importance in object detection / location applications.

Penetration performance depends on sediment characteristics, water depth, transmitted signature, noise level etc. Penetration of more than 60 metres has been achieved in water depths of >500 metres with a layer resolution of typically 10 cm or better.

SYSTEM BENEFITS

- Narrow acoustic beam
- High bandwidth
- Chirp and short pulse modes
- No sidelobes
- Electronic beam steering
- Single ping, multi ping and burst ping modes
- Real-time processing
- Heave, roll and pitch stabilised beam
- Hull mounted transducer
- High spatial resolution
- Accurate location of objects etc.



Outline dimensions for Transceiver Unit

TECHNICAL SPECIFICATIONS

TYPICAL SPECIFICATION:

Primary frequency	35 – 45 kHz
Secondary frequency	1 – 10 kHz
Output power	>16 kW
Beamwidth - Primary	~3.5 deg
Beamwidth - Secondary	3 x 5 deg
Source level (6 kHz)	>206 dB/ 1µPa@1m
Dynamic range	>110 dB
Range resolution	<0.1 m
Penetration capability	>75 m
Depth range	<4 – >2,000 m
Beam steering sectors – across/ along	80/ 20 deg

SYSTEM INTERFACES:

- Navigation input – NMEA 0183 (rs232/UDP)
- Depth input/ output – NMEA 0183 (rs232/UDP)
- Ethernet
- Printer/ recorder – analogue/ digital
- VRU (rs422/rs232)
- Synchronizing unit (K-Sync) – TTL

REAL-TIME PROCESSING:

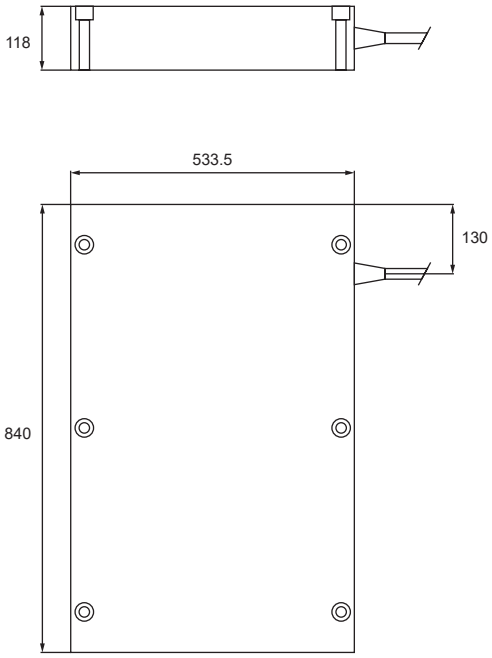
- Digital band-pass filter
- Spiking deconvolution/ Matched filter
- Time Varying Filter (TVF)
- Bad trace removal
- Dereverberation
- Time Variable Gain (TVG)
- Automatic Volume Control (AVC)
- Stacking (Trace mixing)
- Swell filter
- Manual/ automatic gain
- Attribute processing
- Statistics
- Power Spectral Density (PSD) display

ADDITIONAL OFF-LINE PROCESSING:

- Synthetic Aperture Sonar processing (SAS)
- Interpretation/ Digitization of interfaces
- TOPAS tracks displayed/ selected in SIS

DIAMENSIONS AND WEIGHT

- Tranceiver: 600 x 574 x 820 mm, 120 Kg
- Transducer (standard): 840 x 534 x 118 mm, 80 Kg



Outline drawing of transducer array, standard version

Specifications subject to change without any further notice.

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