



GeoPulse Compact is a technically advanced sub-bottom profiling system

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Kongsberg Maritime - Oceanology International 2018: New GeoPulse Compact Digital Sub-Bottom Profiler Delivers High Performance With Class-Leading Low Power Consumption

- *Technical enhancements and flexible deployment options lead benefits of new generation Sub-Bottom Profiler being shown for the first time ever at Oceanology International 2018 – stand D600*

Oceanology International 2018, 13 March 2018 – Kongsberg Maritime is launching the sophisticated new 'GeoPulse Compact' Sub-Bottom Profiler system at Oceanology International 2018. Designed to deliver highly accurate data while using only 11% of the power requirements of previous generation systems, GeoPulse Compact will be available in two versions; a compact Over the Side (OTS) mounted version and a towed version which Kongsberg Maritime will show on its Oceanology International stand – D600.

GeoPulse Compact is a technically advanced sub-bottom profiling system featuring digital processing and waveform selection technology that enables the appropriate pulse-shape, power signature and configuration to be selected for the job in hand, whether it's mapping the geology in deep oceans or determining mud thickness in a silted harbour. Depending upon the survey task the user can choose waveforms in the frequency band of 2-18kHz, optimising resolution and sub-seafloor penetration.

GeoPulse Compact is highly flexible, integrating the best features of continuous wave "Pinger" and frequency modulated "Chirp" type systems but with much lower power requirements than other systems.

The system employs state-of-the-art, very low noise, ADC and amplifier technology combined with advanced FPGA based sample decimation to provide a very high quality dual channel receiver. Massive oversampling of the raw signals combined with digital processing techniques provides acquisition with over 100dB of noise free dynamic range. This allows the system to gather high quality, repeatable data without the need for user controlled analogue pre-processing, providing high performance but simple operation and minimising the likelihood of operator error.

GeoPulse Compact is designed for versatile deployments, with a range of mounting options available from fixed installations on dedicated survey vessels, to towed systems and portable mounting on vessels of opportunity. Regardless of deployment type, the system is operated directly from a computer using the supplied GP1000 software, which interfaces to the deck unit via Ethernet.

"We have designed GeoPulse Compact to offer significant new advantages to end-users," said Dr Richard Dowdeswell, General Manager of Kongsberg GeoAcoustics Ltd. *"While offering reduced power consumption the system still provides incredibly accurate data and long mission duration, while its deployment*

flexibility makes it easy to install on a wide variety of craft, making it suitable for a range of diverse applications.”

The GeoPulse Compact sonar electronics are mounted close to the transducers in all deployment options and the signal is transmitted to the deck unit via a lossless digital connection. Data is acquired with the transmit transducer and with a fixed hydrophone, allowing the operator to use the best signal for the specific application. The Deck Unit receives serial inputs from GNSS as well as a PPS input and interfaces to the towfish through a soft tow cable. Power is supplied by a 10-30V dc connection allowing the system to be operated from battery power on small vessels.

Ensuring high reliability and durability, the waterproof electronics module is manufactured in aluminium and is rated to 1000 metres water depth. Its internal electronics generate and transmit the waveforms selected by the user. The return signals are received either from the integrated hydrophone or from the transducer and are instantly digitised prior to being routed to the Deck Unit via an ADSL link. The transducer is a double resonant stack design which operates efficiently over a wide frequency band of 2 - 18 kHz and has a flat response over the range 5-18 kHz. The integrated single channel hydrophone utilises 7 high-spec elements to capture the return signal and route it via an inline pre-amp to the subsea electronics where it is digitised.

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About Kongsberg Maritime

Kongsberg Maritime is a global marine technology company providing innovative and reliable technology solutions for all marine industry sectors including merchant, offshore, subsea and naval. Headquartered in Kongsberg, Norway, the company has manufacturing, sales and service facilities in 20 countries.

Kongsberg Maritime systems for vessels cover all aspects of marine automation, safety, manoeuvring, navigation, and dynamic positioning. Subsea solutions include single and multibeam echo sounders, sonars, AUV/Underwater Robotics, underwater navigation, communication and camera systems.

Training courses at locations globally, LNG solutions, information management, position reference systems and technology for seismic and drilling operations are also part of the company's diverse technology portfolio.

In parallel with its extensive technology portfolio, Kongsberg Maritime provides services within EIT (Electro, Instrument & Telecom) engineering and system integration, on an EPC (Engineering, Procurement & Construction) basis.

Kongsberg Maritime delivers solutions that cover all aspects of technology underwater and on the water, aboard new build and retrofit vessels, and on offshore platforms and rigs, often under a single supplier strategy called The Full Picture.

Kongsberg Maritime is part of Kongsberg Gruppen (KONGSBERG), an international, knowledge-based group that celebrated 200 years in business during 2014. KONGSBERG supplies high-technology systems and solutions to customers in the oil and gas industry, the merchant marine, and the defence and aerospace industries.

