



GeoChirp II

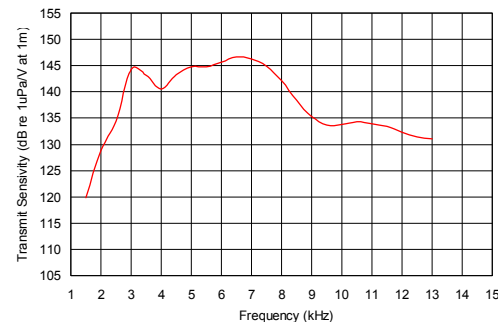
Sub-bottom Profiler System

Introduction

The GeoAcoustics GeoChirp II sub-bottom profiler offers high penetration, even through compacted sediments such as sand and gravel, whilst achieving high resolutions of the order of 6cm.

GeoChirp II is able to do this because it can transmit very high energies into the water per ping, 2kW RMS for 32ms equates to 64J. Each output waveform can sweep between 500Hz and 13.5kHz at high amplitude, giving high bandwidth and thus high resolution. The waveforms contain significant amounts of energy at low frequencies, giving the system high penetration. Output power levels can also be controlled to minimise environmental impact.

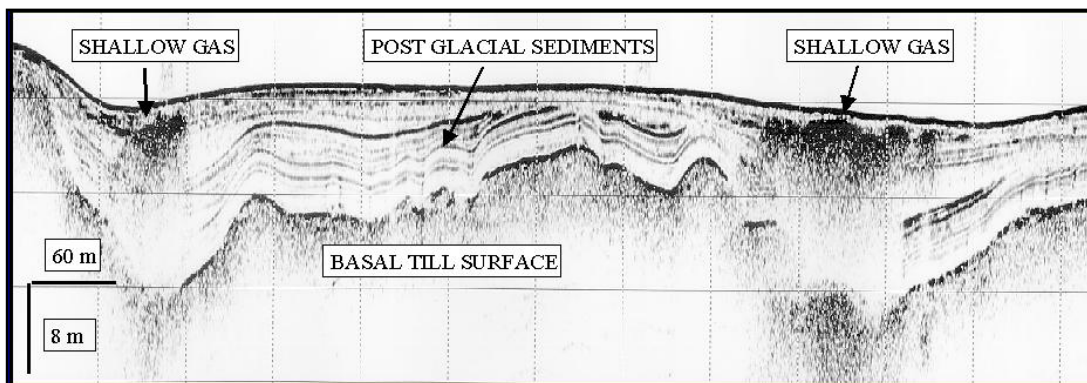
GeoChirp II utilises a novel efficient high power linear amplifier using a type of Pulse Width Modulation (PWM) matched to T135 wideband acoustic transducers to achieve exceptional performance. The wideband design of the T135 transducers allows high power levels across the complete frequency band.



Transmit Sensitivity of T135 transducer

Features

- Very high efficiency power amplifier, greater than 90%
- User can remotely control power level in linear steps from 10W to 4000W
- Waveforms available to suit a wide range of applications
- User can remotely choose from hundreds of stored waveforms, including pinger waveforms
- User can define their own waveforms
- Compact subsea electronics unit, only 403mm long by 103mm diameter
- Simple interface: Ideal for ROV and AUV operation



GeoChirp data showing shallow gas deposits in surficial sediments (courtesy of National Oceanographic Centre, Southampton)



GeoChirp II subsea unit and 4 T135 transmit transducers

Specifications

Transmitter

Frequency Range:	0.5kHz to >13kHz programmable
Power Output:	10W to >4kW user programmable
Source Level:	up to 205dB \pm 3dB re 1uPa@1m
Pulse Length:	Typically 32ms, programmable sweeps (or user defined pings)
Pulse Shading:	Full amplitude control
Pulse Repetition Rate:	4 pulses per second maximum for 32ms chirp sweep 10 pulses per second for pinger waveforms
Protection:	Open and short circuit protected
Efficiency:	Greater than 90%
Beam Width:	55° at 3.5kHz. 40° at 5.0kHz. 30° at 7.0kHz (4 Transducers)
Trigger:	Isolated TTL
Control Interface:	Isolated RS232 bi-directional (3 wire)
DC Power Supply:	200VDC to 400VDC
Transmit Transducers:	4 x T135 Wideband

Receiver

Frequency Range:	200Hz to 25kHz Wideband
Sensitivity:	-205dB \pm 3dB re 1V/uPa
Pre-amp Filter Type:	High/Low pass 4 th order linear phase
Output:	Differential signal 50 Ohm
Noise:	<3nV/ \sqrt Hz

Signal Conditioning

Gain:	Full TVG control up to +80dB
Cable Driver interface:	Up to 10km of 11mm single armoured coaxial cable Rochester A302799 or equivalent

System Performance

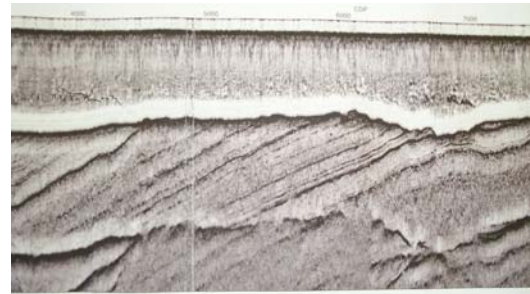
Resolution:	6cm using 0.5 to 13.5kHz chirp
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Mechanical

Dimensions:	Subsea unit, 403mm L x 103mm D Transmit transducers, 184mm x 184mm x 267mm H
Weight:	Subsea unit, 11kg in air, 6kg in water Transducers (each), 11kg in air, 6kg in water
Depth rating:	Subsea unit, 3000m standard Transmit transducers, 1000 m standard

Options

- 12kW Hull mount with 4 x 4 array
- Oversight and Towfish mounting
- GeoPro – data archiving and processing
- Combined Profiler/Side Scan System
- 3000m depth rated transducers
- Combined Deep Tow System



GeoChirp II data showing 30m penetration through veneer of consolidated sediments (courtesy of National Oceanographic Centre, Southampton)

*Specification sheet subject to change without notice.
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