

GeoPulse Pipeliner



GeoAcoustics



PINGER SUB-BOTTOM PROFILER FOR PIPELINE DETECTION

GeoPulse Pipeliner offers a solution to the problem of detecting buried pipelines. Based upon the successful GeoPulse Sub-Bottom Profiler it has a specific transducer array design to maximize the footprint size and detection capabilities, together with an additional high frequency transducer for higher resolution imaging and burial depth determination.

Technology

The towfish transducer layout is configured to give the perfect acoustic footprint for pipe detection. The Transmitter (Model 5430P) allows control of the output power, frequency and the number of cycles included in the outgoing pulse. At the flick of a switch a 14 kHz transducer can be activated allowing higher resolution data to be collected and pipeline burial to be accurately determined. Seabed returns can be conditioned by analogue means using the GeoPulse Receiver (Model 5210A).

System components

The basic system includes the following:

- GeoPulse Transmitter (Model 5430P)
- GeoPulse Receiver (Model 5210A)
- Towfish (Model 136P) containing
- Profiling Transducers (2 x Model T135, 1 x T14)

Model 136P Towfish

It houses the 3 transducers and provides a stable sub-tow survey platform, which may be towed down to 600 metres using a standard 2000 metre armoured tow cable. An alternative deployment option for the profiling transducers is our Over-the-side Transducer Mount (Model 132P), which makes it possible to use the system in very small boats for river, harbour or shallow lake surveys. Dimensions of Deployment Options:

Transmitter Model 5430P

Output power continuously adjustable to 5kW. 2-12 and 14kHz frequency range, operator selectable with front panel dial/switch. Pulse length selected by number of cycles to improve efficiency of transducers and reduce ringing. Transmit repetition rate controlled externally or internally, operator selectable. Internal switch for 115/230 VAC

improper operation. Unit is protected against damage caused by line voltage. Impedance matching switch allows operation with single or multiple transducer arrays. Separate/combined switch to transmit on portion of transducer array and receive on remaining portion or to modify beam pattern of transducer array. Indicators to easily monitor all system parameters.

Receiver Model 5210A

Combined TVG and operator controllable gain provide up to 100dB of active gain for low amplitude signal processing. Automatic bottom tracking provides constant TVG adjustment regardless of bottom variation or degree of slope. (Manual TVG is standard) AGC provides operator with the ability to manipulate receiver sensitivity for a given reflector intensity. Key program: Multiply and divide-by functions for source triggering flexibility in deep water or extremely shallow water. The tape interface allows for recording of either raw or processed data. Eliminates costly interface devices and provides calibration signal for proper recorder adjustment. Optic isolation between receiver and source power supply prevents ground loop interference on acoustic record. TVG record annotation: Upon switch closure by operator or by Nav interface, places a mark on record at every 6dB point throughout TVG ramp. Compensates for spreading and attenuation losses through the water column in deep water. All gain controls, manual or TVG, are in fixed increments enabling relative reflectivity of different areas to be compared. Signal output to tape recorder is displayed by LED's signifying maximum possible dynamic range or presence of clipping. Data can be displayed directly onto a wide range of industry standard graphic recorders.

FEATURES

- Selectable transmit frequency 2 to 12 kHz
- Selectable 14 kHz transducer
- Pipeline detection
- Over-the-side, towed or hull mounted deployment
- Reliable, proven, easy to use
- Good penetration and resolution

OPTIONS

- Third party acquisition system integration
- Range of tow cables and winches

TECHNICAL SPECIFICATIONS

Receiver Model 5210A

- Amplifier: Differential common mode rejection:
- 100 dB at 60 Hz. Sensitivity 30 μ V RMS in, produces 1V RMS out at 90 dB total gain with TVG
- Signal to noise: 20 dB at 100 dB gain 1 kHz centre frequency and 1 kHz bandwidth
- Coarse gain: 40 dB maximum
- Fine gain: 0 – 30 dB in 3 dB increments
- Filter: Low pass and high pass, active type, maximally flat, 24 dB/octave minimum roll-off, 0 gain, 0.02 kHz to 15 kHz adjustable in $\frac{1}{2}$ octave increments
- Knobs interlock to prevent overlap
- TVG: Dynamic range: 30 dB
- Rate: approximately flat to 30 dB in 14 ms
- Manual delay: vernier adjust from 1 to 14 ms with multiplier of x 1, x 10, x 100 and internal select of x 1000
- AGC: Attack adjustable from 330 μ s to 330 ms
- Decay: adjustable from 330 μ s to 330 ms
- Range: 20 dB
- Power: 115/230 VAC \pm 10% (internal switch selectable), 47 to 63 Hz, 45 W maximum
- Environmental:
 - Operational: -5 to 50° C,
 - Storage: -15 to 85° C
- Dimensions:
 - 45.7 cm (L), x 43 cm (W), x 17.8 cm (H)
- Weight: 12kg

Transmitter Model 5430P

- Output: 5 kW with 0.75% duty cycle, continuously adjustable
- Adjustable from 2 to 12kHz, and switchable to 14kHz
- Pulse Cycles: 1, 2, 4, 8, 16 or 32
- Output to Receiver Transformer isolated response flat between approximately 1 kHz and 20 kHz
- Two modes of operation:
 - A: Flat gain -0dB gain
 - B: Short range TVG -20dB (10:1) of attenuation during transmit pulse and a -20dB to 0dB ramp within 15 ms after end of transmit signal
- Key: External: 2 to 12V pulse or internal:
- Power: 115/230 VAC \pm 10%, 47 to 63Hz, 220W maximum
- Auxiliary Power: IEC connector, unfused, 6A maximum
- Environmental:
 - Operational: -5 to 50° C
 - storage: -15 to 85° C
- Dimensions:
 - 45.7cm (L) x 43cm (W) x 13cm (H), 18kg

Dimensions of Deployment Options:

- 132P: 70cm (L) x 52cm (W) x 46cm (H), 120kg
- Mounting Staff:
- One section 183cm, two sections 360cm
- 136P: 156cm (L) x 46cm (W) x 46cm (H), 125kg

Specifications subject to change without notice. E&OE