

# CUSTOM DESIGN



Chelsea Technologies Group Ltd has extensive expertise in electronics and acoustics and can custom design and manufacture systems, or elements of systems. Previous work includes:

- Acoustic telemetry systems
- Sonar for submarines & surface ships
- Warning Pingers, Towed Synchronised Pingers & Torpedo Recovery Pingers
- Arrays for Sidescan Sonar
- Spread Spectrum combined Acoustic Positioning & Communications (POSCOM)
- Sea Shadow
- Sonar Acoustic Source systems & Echo Repeater
- Acoustic Transducers and Hydrophones
- Digitally Multiplexed Towed Arrays and Seismic Streamers Active Sonobuoys
- Vertical Line Hydrophone & Source Arrays

## Acoustic telemetry systems

The Chelsea Technologies Group offers a custom design and manufacture service for acoustic telemetry systems and acoustic modems. We have designed and manufactured custom telemetry systems and modems for both commercial and military customers.

Companies using the Chelsea systems include BAeSEMA and GEC-Marconi as part of their exercise mines, which are used for training mine hunting crews. These acoustic telemetry / modem systems are in-service with the United Kingdom, United States of America, Canadian, Australian and Belgian Navies. Chelsea Technologies Group telemetry systems have covered frequencies from 8kHz to 60kHz, and been used for applications such as data transfer and complex telemetry.

All these systems have optional GUI (Graphical User Interface) control systems running under Windows NT4 or 95/98, which have been developed to provide easy control of these advanced acoustic telemetry systems.

## Sonar for Submarines & Surface Ships

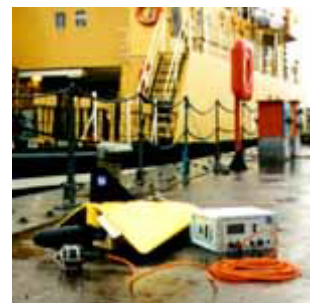
The Chelsea Technologies Group offers a custom design and manufacture service for sonar systems and sonar system components. Active sonar and passive sonar systems are supplied for both surface ships and submarines. These are produced to cover functions such as intercept, navigation, obstacle avoidance and high power tracking pinger output.

Sonar equipment designed and manufactured by the Chelsea Technologies Group Ltd is included in many UK submarines as the outboard components of Sonar 2077. Chelsea also offers technical and logistics support to the UK MOD, DERA, etc. for both in-service and new-generation sonar systems.

## Towed Synchronised Pingers

Chelsea offers a custom design and manufacture service for acoustic synchronised pinger and triggered pinger systems.

Chelsea Technologies Group Ltd supply the STAB4 towed synchronised pinger system, which is used on the BUTEC underwater, tracking range in Scotland. This advanced pinger system, which was designed and developed for the UK DGUS, can be towed up to a speed of 25 knots and can be commanded using acoustic telemetry from a surface vessel. It is a fully synchronised system and achieves a timing accuracy of better than 200 microseconds over its 12-hour battery life. Chelsea Technologies Group Ltd also supply tracking pingers for use on the Rhona range in Scotland, this system mounts within the 'sea chest' of submarines. Torpedo recovery pingers have also been designed and manufactured for several different torpedoes.



Chelsea Technologies Group also produces a PC-based portable synchronised pinger and receiver system, or Distance Measurement Equipment (DME), for use on submarines or surface ships. This slant range processor and synchronised pinger system can be interfaced with a vessel's sonar to provide a synchronised pinger or a synchronised receiver that can display slant range.



In Distance Measuring Equipment (DMS) mode, Versatile Acoustic Source System (VASS) can transmit or receive underwater acoustic tracking pulses. This system is used to measure the slant range between the towed body of VASS and the vessel under test. So that the vessel under test can display the slant range a Remote DME unit is provided which has all the digital signal processing and synchronisation equipment mounted within a PC. The configurable parameters are controlled via an easily operated Graphical User Interface, running under Microsoft Windows 95/98/NT4.

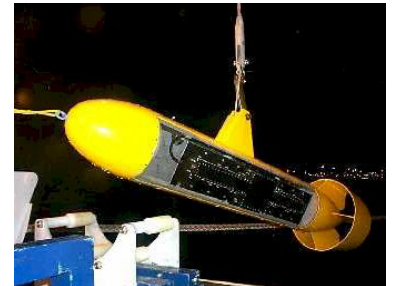
## TECHNICAL SPECIFICATION

<b>Slant Range (DME) System:</b>	Synchronised ranging system
Frequencies:	Selectable depending on the vessel's sonar
Synchronised:	Via VHF radio to vessel under test
Oscillator:	Highly stable oven controlled oscillator
<b>Remote DME System:</b>	For use in vessel under test
PC:	Small mains powered PC with LCD screen
Cards included in PC:	DME processor and DME DSP card
Printer:	Portable ink jet
Transmit Interface:	Underwater telephone system or separate transducer(s)
Receive Interface:	Analogue or digital feed from suitable vessel's sonar or separate transducer(s)
Synchronisation:	Interface to vessel's VHF radio set

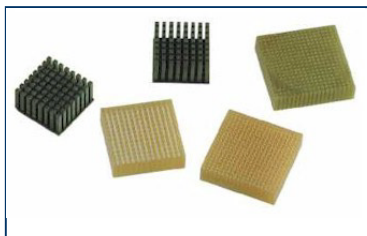
### Arrays for Sidescan Sonar

The Chelsea Technologies Group offers a custom design and manufacture service for sidescan sonar arrays and the electronic and processing systems associated with sidescan sonar arrays. We specialise in designing and producing state of the art sidescan sonar arrays and interferometers for integration into OEM systems.

Sidescan sonar arrays from the simple to the very complex have been supplied to organizations such as Ultra Electronics, C-Max, Sonar Equipment Services and the UK Navy. Sidescan sonar array designs are available covering frequencies between 60kHz and 700kHz.



### Piezocomposite Sidescan Sonar Array



We recently announced the availability of the first commercially priced piezocomposite high-resolution sidescan sonar array. Offering improved beam pattern stability and ultimately higher resolution than conventional monolithic sidescans, piezocomposites promise to revolutionise the sidescan manufacturing industry. The launching of piezocomposites for imaging sonar follows on

from our recent development of high frequency piezocomposites in conjunction with the UK's Defence Evaluation and Research Agency (DERA).

### OTHER ARRAYS

Chelsea Technologies Group Ltd, in addition to sidescan sonar arrays, can also design and manufacture acoustic arrays for other purposes such as detection or tracking.



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