



Issue one  
Winter 2002/2003

# Underwater Solutions

Leaders in the supply of marine survey equipment

## Providers of:

- Acoustics
- Geophysical Systems
- Floatation
- Subsea Tracking/ Location
- Hydrophones
- TCM2 Compasses
- Oceanographic Systems
- Mooring Systems
- AUV/ROV
- Cameras
- Consumables
- Software Packages

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## Welcome to MK Services!

Underwater Solutions is the new newsletter of MK Services Ltd. The intention is that these newsletters will keep you up to date with all the news at MKS as well as product developments relating to the various ranges of equipment we offer.

Underwater Solutions has been created for two reasons:

Firstly, it's our belief that part of our relationship with our clients – customers, potential customers and anyone who's interested in underwater surveying – involves being open and informative about all aspects of our business. Which is why, wherever possible, we'll be putting you in the picture as we develop and continue to grow.

Secondly, we recognise that the purchase of new equipment represents a considerable investment, not only in terms of the time and effort involved, but also in the faith placed in the ability of the system to deliver results. There-

fore, as the name Underwater Solutions suggests, we will also be bringing you examples of where MK Services' has supplied equipment that has provided a customer with real benefits.

signed to give you further insight and knowledge of some of the options available to you on the marketplace. We hope that by highlighting both 'tried and tested', and thoughtful innovative new technology, we



Have you seen this Man? If not then give us a call!!

We are all well aware of the phrase 'speculate to accumulate' and that in more extreme circumstances this can effectively mean investing to survive. When this is the case the choice of product and quality of service is of the utmost priority. This publication is de-

will be able to provide you with answers to your underwater problems.

And the initial cost to you to investigate some of the possibilities? Simply some of your time; say ten minutes to read this newsletter, or an hour or so in discussion with us.

## MK Services Acquires GIB for Hire

As some of you may have heard through the grapevine, MK Services has decided to purchase a GPS Intelligent Buoy (GIB) subsea tracking system for our hire pool.

This decision was made following an impressive demonstration of the system in Weymouth.

The GIB is essentially an inverted longbaseline system, which translates the high accuracy of DGPS into the underwater domain.

By utilizing GPS technology the GIB eradicates the need for lengthy calibration process. The system is also fully portable enabling it to be deployed

from any vessel of opportunity. These constitute major advantages over existing tracking systems in use today.

The hire system is fully user configurable and options are provided to add flexibility. Tracking accuracies of 1m horizontally and 30cm vertically can be achieved.

## New Benthos High Data Rate Acoustic Modems Available

Benthos has announced the release of its new high speed acoustic modem range, available through MK Services.

The new ATM-890 models have been successfully sea-trialed and resulting data transfer rates of over 15kbps have been achieved.

This data rate is significantly greater than the previous model, which managed bi-directional through-put of 2.4kbps. The main reason for this improvement in data rate is the use of a unique method

of modulation known as Phase Shift Keying.

Benthos acoustic modems have already proved to be extremely versatile, in the field of remote data collection, and can be easily integrated into subsea instrumentation packages.

They have been used in many diverse environments and for many different tasks, such as Tsunami early warning stations, real time cable trenching plough stability measurements and real time acquisition of

bending stresses from subsea pipelines.

The modems offer a range of different configurations, depending on the customers requirement, such as a remote transducer head, which makes the acoustic modem easier to integrate into the subsea package. Battery options provide optimal deployment life.

With a wealth of experience within this complex field, MK Services are able to offer advice and support in order to solve any problem.



Benthos Subsea Modem with Integral Transducer (bottom) and remote transducer options (above)

## QinetiQ Acquire REMUS AUV

QinetiQ has recently placed an order for two REMUS AUVs in order to assess the vehicles potential for use in Mine Counter Measure activities.

QinetiQs decision to trial the REMUS follows a successful year-long trial, by the US Navy, which has now resulted in them placing an order for 18 vehicles.

After years of Development at the Woods Hole Oceanographic Institute (WHOI), the

world's most powerful, compact AUV is now commercially available through M.K. Services.

REMUS is a 1.6m long lightweight AUV, initially designed for shallow oceanographic data collection. The sensors on the vehicle can collect the following data:

- ADCP
- Optical backscatter
- CTD
- Bathymetry

The system also incorporates a high frequency (300, 600, 900kHz) side scan sonar, which is capable of detecting small objects such as mines.

REMUS's capabilities make it ideally suited for scientific, commercial and/or military operations. The vehicle is small enough to be carried by one man, yet is sophisticated enough to perform intricate sonar and oceanographic surveys over large areas.



*"REMUS's capabilities make it ideally suited for scientific, commercial and/or military operations."*

## In Profile: The TCM2-20/50 Compass Module

The TCM2 is a small, low-cost, 3-axis magnetometer, with a 2-axis inclinometer. The TCM2 outputs compass headings, pitch, roll, temperature and magnetic field readings. The TCM2-20 has a tilt range of up to 20°, the TCM2-50 has tilt range of 50°. The TCM2 utilizes a patented technology that outperforms all other magnetic sensors in its class.

TCM2-20	
<i>Heading Information</i>	
Accuracy (level):	±0.5° rms
Accuracy (tilted):	±1° rms
Resolution:	0.1°
Repeatability:	±0.1°
<i>Tilt Information</i>	
Accuracy:	±0.2°
Resolution:	0.1°
Repeatability:	±0.1
Range:	±20°

TCM2-50	
<i>Heading Information</i>	
Accuracy (level):	±1.0° rms
Accuracy (tilted):	±1.5° rms
Resolution:	0.1°
Repeatability:	±0.3°
<i>Tilt Information</i>	
Accuracy:	±0.4°
Resolution:	0.3°
Repeatability:	±0.3
Range:	±50°



The TCM2 Electronic Compass, Magnetometer, and Tilt Sensor Module

## GIB Demonstration For UK Submarine Rescue Service

On November 19th MK Services, in conjunction with our French associates ACSA, carried out a demonstration of the GIB subsea tracking system for James Fisher Rumic Ltd.

James Fisher Rumic provide the Royal Navy with the UK Submarine Rescue Service (UKSRS), and are capable of mobilising with as little as 12 hours notice.

The aim of the demonstration was to show how the GIB can be used to accurately track the small manned submarine

LR-5 during shallow underwater operations.

The GIB was unpacked, deployed and ready within two hours. To assess the accuracy of the system, the pilot was guided by surface personnel (using the GIB control console) down to a known fixed target on the seabed. This was repeated using a number of different approaches, and on each occasion the submarine was guided to the target successfully.

The GIB can be used both for

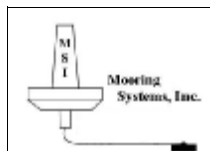
locating a stricken submarine, via an emergency pinger, and also for guiding underwater vehicles/divers to it. The systems portability, speed and ease of deployment make it an ideal solution for use in submarine rescue.

Reports of this and other demonstrations, which show results obtained from the GIB in many different situations, are available from MKS.



Preparing the GIB Buoys at UKSRS Demonstration

## Companies Represented By MK Services Ltd



### General Response Form

Please indicate, by ticking the relevant boxes below, as to which line of products you would like more information.

Comments:

- |   |  |
|---|--|
| <input type="checkbox"/> GPS Intelligent Buoy (GIB) | <input type="checkbox"/> Oceanographic Instruments     |
| <input type="checkbox"/> Telesonar Acoustic Modems  | <input type="checkbox"/> REMUS AUV                     |
| <input type="checkbox"/> TCM2 Compass Module        | <input type="checkbox"/> Floatation/Mooring Systems    |
| <input type="checkbox"/> ROVs                       | <input type="checkbox"/> Geophysical software packages |

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*M.K. Services are specialists in the provision of marine survey equipment to meet the precise needs of geophysical, hydrographic, surveying positioning and underwater inspection applications.*

*Representing some of the worlds leading manufacturers, M.K. Services is uniquely placed to provide a wide range of proven systems and services.*

*Above all we have developed a very close knit team of experts whose contribution to a client's operation goes far beyond expediting orders, since their expertise can help with choosing the correct combination of equipment for successful operation in the field.*

*For more details on any of the items listed in this newsletter, or for any general enquiries, please contact Sean Arnold or Nick Lawrence and we will be happy to provide you with all the information you require.*

## Winter Special Offer! 17" Glass Floatation Spheres

Due to a bulk purchase, M.K. Services is pleased to offer a discounted price on 17" glass floatation spheres. The offer will run on a 'first come first serve' basis, due to limited availability, so HURRY WHILST STOCKS LAST!!

The offer price represents a 30% reduction on the previous price.

Deep sea glass spheres are a unique, reliable, and cost-effective alternative for floatation. Benthos is the world's leading manufacturer of deep sea glass spheres and instrument housings.

Benthos patented VacuSealed® glass floats are manufactured from precision-moulded hemispheres to exact

specifications. The edge of each hemisphere is ground flat to extreme tolerances. When used for floatation, the hemispheres are matched, mated, and then evacuated to an absolute internal air pressure of less than 0.3 atmospheres. After evacuation, a sealant and protective tape are applied around the equator.

Benthos spheres are pressure tested to full ocean depth *individually* after they have been sealed. Versions of the spheres are also available in 10" and 13" diameter.

Benthos also provide instrument housings, which, can be configured with penetrators and vacuum ports.

**30% Off!**  
**Whilst Stocks Last**



Benthos Glass spheres with ribbed hard hats