



Scout USBL is a complete vessel based acoustic positioning system designed for tracking divers, ROVs and towfish in waters up to 1,000 metres. The system calculates the position of a subsea target by measuring the range (distance) and bearing (heading) from a vessel mounted transceiver to a small acoustic transponder fitted to the target; a technique known as Ultra-Short Baseline (USBL) positioning. USBL is widely used by the offshore survey and ocean scientific industries as it offers high accuracy performance combined with efficient subsea tracking operations.

### Fast and Efficient Operations

One of the main advantages of the USBL technique is that no other in-water acoustic equipment has to be deployed before underwater operations can commence. Only the targets being tracked need to be equipped with a transponder.

With Scout, a boat can arrive on location and begin tracking straight away. This has particular benefits for search and salvage applications when search times are critical.

### Scout Product Family

Three versions of Scout USBL are available: Scout, Scout Plus and Scout Pro.

Scout and Scout Plus are entry level systems designed for general target tracking applications at ranges up to 500 metres. Scout can track one surface vessel and four subsea targets whilst Scout Plus can track six targets and incorporates a Responder mode. This enables the system to calculate a target's position at a much higher update rate, ideal for fast moving vehicles such as ROVs and towfish.

With both versions, all sensors and hardware are provided whilst the software is simple to learn and intuitive to use. These features make Scout and Scout Plus the ideal solution for users with little or no prior experience of acoustic systems.

### Scout USBL at a glance

- Affordable and high accuracy tracking system for divers, ROV and towfish
- Easy to install and use; no prior USBL experience required
- Supports simple through to complex subsea positioning operations
- Up to 1,000 metres slant range
- All sensors, software and hardware provided
- Portable; can be operated from almost any size boat including RIBs
- Equipment upgrade path to Sonardyne's deep water USBL system – Ranger

# SCOUT USBL

## SHALLOW WATER SUBSEA TARGET TRACKING SYSTEM

Scout Pro is designed to support complex construction survey applications through its fully featured software. It provides greater accuracy, tracking for up to 10 subsea targets and a 1,000 metre design slant range.

The advanced topside control hardware supplied with Scout Pro systems enables experienced users to operate using Sonardyne's Wideband digital acoustic signal technology. The benefits of using Wideband include greater immunity to noise interference and a ten fold improvement in measurement repeatability.

### System Overview

A Scout USBL system comprises four main components: control software, vessel based interface unit, acoustic transceiver and transponders.

### Software

Scout and Scout Plus software is easy to use and intuitive to operate. It is designed to appeal to users who wish to arrive on location and begin tracking a target immediately. Features include clear and simple configuration tables as well as diagnostic tools to assist an operator in preparing the system for tracking an underwater target.

Scout Pro software shares a common look and feel with Sonardyne's survey-grade platform, Fusion. It offers the user a complete range of tools that include: chart backdrops, industry standard output telegrams and configurable sensor displays.

### Interface Unit

As standard Scout and Scout Plus systems are supplied with a rack-mountable Surface Interface Unit (SIU). This supplies power and communications to the transceiver and is connected to the user's own computer via a serial or USB link.

For complete system portability and operation from almost any size of boat, Scout and Scout Plus systems can be commanded using the Surface Command Unit (SCU).

The SCU incorporates all the features of a rack mounted Surface Interface Unit (SIU), supplying power and communications to the acoustic transceiver. Being completely portable enables operation of Scout USBL systems independently from almost any type of boat, including small RIBs, and in any climate: rain, tropical heat and snow.

The latest version, SCU 2, has been upgraded with a faster processor, more memory, solid state hard drive, a heat exchanger, rechargeable Li-ion battery packs, robust mechanics, a 12" LED backlit screen providing a bright and crisp display that is viewable in direct sunlight and all incorporated in a ruggedized splash-proof case.

The SCU 2 can also be used with Sonardyne's 6G<sup>®</sup> autonomous monitoring product range (Fetch, PIES and AMT) for fast and efficient retrieval of logged subsea data.

Scout Pro systems are supplied with a rack-mounted Navigation Controller Unit (NCU). In addition to accurately time stamping incoming data from external devices such as GPS, gyros and VRU's, the NCU also provides power and communications for the Scout USBL transceiver.

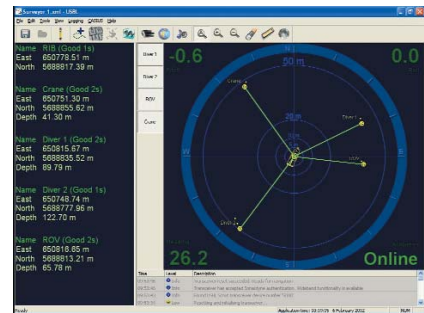
A range of hardware interface cards are available for interfacing external sensors and transceivers other than the standard Scout transceiver. By simply plugging these cards into the rear of the unit, the role of the Navigation Controller Unit can be transformed from supporting simple to complex acoustic operations.

### Acoustic Transceiver

The USBL acoustic transceiver designed for use with Scout systems provides a hemispherical pattern of acoustic coverage underneath a surface vessel. It is suitable for a wide variety of underwater positioning tasks as it enables targets to be tracked from far below through to near surface.

### Software

Scout software has been designed to be very easy and intuitive to operate with no previous experience of acoustic positioning systems required.



### Surface Command Unit

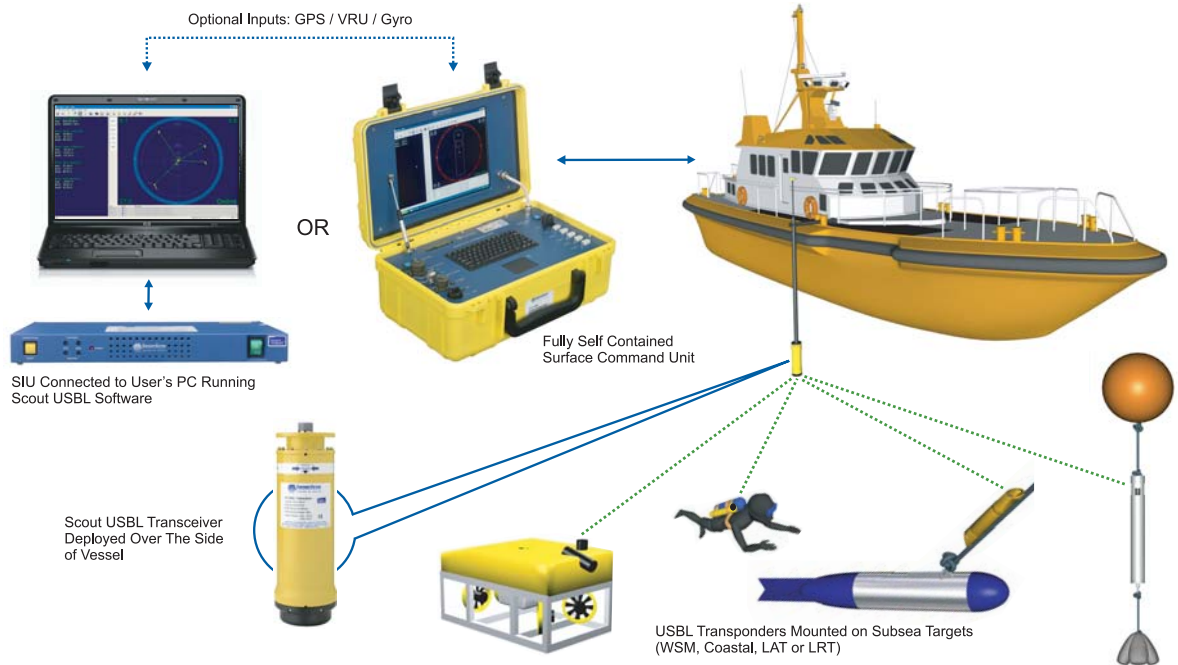
The SCU is a portable computer and control unit that enables Scout USBL to be operated independently from almost any type of boat and in any climate.



### Scout USBL Transceiver

Scout transceivers are typically deployed from a rigid pole mounted to the side of the vessel. When a permanent installation is required, the transceiver can be fitted to a through-hull deployment machine. The integrated heading, pitch and roll sensor simplifies setup.





The compact design of the transceiver makes it easy to install on a simple over-the-side mount or through a gate valve. Sonardyne can supply an easy-to-assemble pole, complete with fittings and advice on installation, if required. This ensures the performance of Scout can be optimised for the vessel it is operating from.

To simplify set-up, Scout transceivers are equipped with an integrated motion sensor that automatically compensates for the motion of the vessel. For higher accuracy applications, external reference sensors can be used with Scout Plus and Scout Pro.

When tracking targets far behind a vessel, such as a towed side scan sonar, a tilted transducer array ensures that the target is kept within the transceiver's optimum cone of operation.

### Transponders

Scout USBL is compatible with Sonardyne's family of low cost HF frequency transponders; Coastal, LAT and LRT. These have been designed for applications where size and weight are important operational factors, such as installation on the back of a diver or ROV. The transponders are depth rated to 500 metres and use an alkaline battery pack that provides up to 18 months of listening life.

Scout Plus and Scout Pro both offer additional compatibility with the advanced Wideband Sub-Mini (WSM) transponder. WSMs are available with powerful omni or directional transducers, responder mode for fast position updates, depth sensor to aid USBL positioning accuracy and a rechargeable NiMH battery.

### ViewPoint Navigation Package

ViewPoint navigation software allows multiple users to explore, visualise and share positioning data from Sonardyne's USBL product family, including Scout (Scout Plus and Pro only) and Ranger. It transforms co-ordinates of surface vessels, subsea vehicles and structures into geographical information that is overlaid on easy-to-use guidance displays. When changes to Scout are made, such as adding a new tracked target, they automatically appear in ViewPoint, ensuring everyone onboard has access to accurate, real-time positioning information.



### Tracking Transponders

Scout USBL is compatible with Sonardyne's family of low cost transponders. Scout Plus and Scout Pro both offer additional compatibility with the advanced Wideband Sub-Mini (WSM) transponder. All transponders have been designed for applications where size and weight are important factors.



**Global Headquarters**  
 T. +44 (0) 1252 872288  
 F. +44 (0) 1252 876100  
 sales@sonardyne.com

**Aberdeen, UK**  
 T. +44 (0) 1224 707875  
 F. +44 (0) 1224 707876  
 sales@sonardyne.com

**Houston, USA**  
 T. +1 281 890 2120  
 F. +1 281 890 7047  
 usa.sales@sonardyne.com

**Singapore**  
 T. +65 6542 1911  
 F. +65 6542 6937  
 asia.sales@sonardyne.com

**Rio das Ostras, Brasil**  
 T. +55 22 2123 4950  
 F. +55 22 2123 4951  
 brasil.sales@sonardyne.com

## Scout Performance Summary

Operating Range	500 metres (Scout, Scout Plus) 1,000 metres (Scout Pro)
System Accuracy	2.75% of Slant Range Using Scout transceiver's internal heading and attitude sensor 0.5% of Slant Range Scout Plus or Scout Pro using external VRU and gyro
Number of Targets Tracked	1 surface, 4 subsea (Scout) 1 surface, 6 subsea (Scout Plus) 1 surface, 10 subsea (Scout Pro)
Output Telegrams	Supports all industry standard survey and DP telegrams

## Scout USBL Equipment List

Key: ● = Required ○ = Optional  
 (Please refer to separate technical datasheets)



● Software  
Scout (Std,  
Plus or Pro)



○ Software  
Viewpoint  
Navigation



● Type 8038  
Surface  
Interface Unit



○ Type 8039  
Surface  
Command Unit



○ Type 8020  
Navigation  
Command Unit



● Type 8024  
Scout USBL  
Transceiver



● Type 7815  
Coastal  
Transponder



○ Type 7986  
LRT  
Transponder



○ Type 8044  
LAT  
Transponder



○ Type 8070/71  
Wideband Sub  
Mini Transponder

## Other Acoustic Positioning Systems from Sonardyne

- Ranger 2 USBL
- Fusion 6G<sup>®</sup> LBL
- Marksman LUSBL
- Prospector LBL

## Scout Key Technology



### Multiple Target Tracking

Scout USBL can track up to 10 mobile targets simultaneously up to ranges of 1,000 metres. With the 'ping stacking' software feature enabled in Scout Pro, one second position updates can be achieved.



### Quick and Easy to Deploy

As soon as a boat arrives on location and deploys its USBL transceiver, tracking of divers and underwater targets can begin. This makes operations using Scout fast and efficient.



### Portable

Scout can be operated from almost any size boat including small RIBs. The transponders designed for use with the system are small and robust, ideal when space on an ROV or towfish is restricted.



### Heading Sensor

Scout's transceiver is fitted with an internal motion sensor that automatically compensates for the dynamic motion of the boat. For the highest accuracy, Scout Plus and Pro can be interfaced to external reference sensors such as Sonardyne's Lodestar AHRS can be used.



### Support

Need to get in touch? Sonardyne's customer support team are available around the clock to get you the answers you need. From advice on which product to use to operational support, it's all part of the service.