



APPLIED ACOUSTICS
Underwater Technology



Positioning & Release Beacons

www.appliedacoustics.com



Applied Acoustics has been at the forefront of subsea positioning technology for over 25 years. Its range of USBL acoustic positioning beacons is one of the most extensive available from any manufacturer and includes small lightweight models for use in shallow waters up to larger models that operate in deeper, more challenging environments.

Variations in size, power and battery life, along with additional optional features, create a comprehensive, wide-ranging selection of beacons that address a multitude of subsea operational applications. This robust, reliable and dependable range operates with the Easytrak family of tracking systems, as well as most other MF USBL systems worldwide, giving added value and even more versatility.

Stable positioning data is achieved by the incorporation of 2-way Sigma spread spectrum technology into all 1000 Series beacons. This technology creates a secure acoustic link and reduces the risk of interference during operations.

Internal batteries fitted into all positioning beacons ensure the units are not reliant on external sources, reducing the potential for operational down-time. In addition, all 1000 Series and 600 Series beacons can be trickle charged from a 24V ROV power supply, ensuring full battery life is maintained in case of emergency.

1200 & 1300 Series Micro Beacons

Micro beacons are the smallest beacons in the range and are ideal for use in shallow water environments, operation in a confined space or for applications not requiring a high level of power output.

The 1219 Micro beacon has a micro USB connector protected by a rugged waterproof cap that allows channel selection and battery recharging without opening the housing. The 1319 Micro beacon has an external connector that allows it to operate from a ROV 24V power supply, as well as a USB adaptor cable for channel selection and charging.

All standard USB charging methods such as via a PC, tablet or even a car adaptor, can be used to recharge the beacons, whilst an 'app' running on a PC allows for easy configuration. Micro beacons are typically used for tracking divers, small inspection ROV's or mini tow fish such as side-scan sonars.

1010 Series Mini Beacons

The 1000 Series Mini beacons are typically used in general purpose tracking and positioning applications. Supplied with directional or omni-directional beam patterns, a wide range of variants and quick and easy configuration, these beacons offer the widest flexibility across the entire range. Applications include both inspection and workclass ROV operations, tow-fish tracking, and oceanographic monitoring.

1030 Series Midi Beacons

Midi beacons have more acoustic power output than the Mini but have a similar battery life enabling them to operate at longer ranges. These beacons operate in deeper water, with side-scan sonar tow fish, larger work class ROV's, subsea ploughs and trenchers during cable and pipe laying work.

1060 Series Fatboy Beacons

Fatboy beacons are ideal for deep water operations, acoustically challenging environments, and applications requiring long operating ranges. Fatboy beacons have an extremely high acoustic output and have proven themselves in deep water operations over many years.

1050 Series Seabed Beacons

The largest beacons in the range, Seabed beacons have exceptionally long life battery options that make them ideal for long term reference points, USBL calibration beacons and Dynamic Positioning reference markers. Not only are these beacons currently the only rechargeable 'seabed' beacons in the market, an alkaline battery pack can be fitted for even longer deployment, up to 2 or 3 years. Seabed beacons can also have standard floatation collars fitted to ensure vertical operation at depth.

600 Series Low Frequency Beacons

Low frequency beacons offer all round flexibility for long range or deep water applications and are compatible with all major LF tracking systems operating worldwide. This product has a very long range and is easily customisable for telemetry and wireless control applications.

V-Nav, 1400 Series

The 1400 Series beacons are a key part of the V-Nav positioning system that is used with static targets, such as OBC cable nodes or for time lapse study applications (4D). The beacons are ideal for re-location work and when a very large number of subsea targets need to be positioned. These are 'low-cost' beacons that may be regarded as expendable in certain applications.

Release Beacons

Release beacons provide the means by which scientific, survey or operational equipment can be deployed or reliably retrieved from its anchored seabed mooring. Applications include long deployment environmental monitoring, USBL calibrations and subsea construction. A positive drive-off mechanism ensures a reliable mechanical release in high bio-fouling environments.

The 1500 Series release beacons incorporate Sigma spread spectrum technology for added 'uplink' reliability. In addition, the 529P beacon can be supplied with a load multiplier frame that will increase the release load to 10 tonnes.

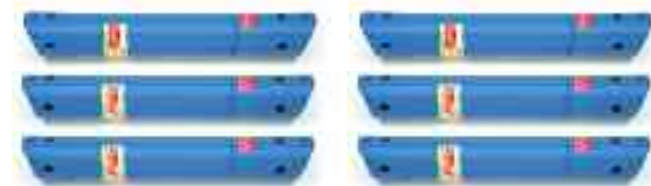
Positioning & Release Beacons

Selecting a beacon relies on the optimum balance between power, battery life and physical characteristics. The chart shows the many permutations offered from the extensive range, along with additional variations and typical applications. Customised options may also be available.

Positioning Beacons



V-NAV



Release Beacons



	Beam Pattern	SPL	Survival Depth	Listening Life	Operational Life at 1.0pps Sigma spread spectrum mode, continuous	Beacon Diameter including sleeve where supplied	Length including cage where supplied	Weight in Air/Water	Rechargeable	Options	Compatibility with non AAE USBL systems	Typical Applications
1200 & 1300 SERIES MICRO												
1219	± 90°	183dB	600m	45 days	30 hours	50mm	248mm	830g/320g	✓		✓	Diver tracking Inspection ROV AUV
1319	± 90°	183dB	600m	45 days	30 hours	50mm	269mm	900g/390g	✓	Remote transducer	✓	
1010 SERIES MINI												
1019	± 90°	188dB	1500m	60 days	150 hours	74mm	395mm	2.88kg/1.38kg	✓	Remote transducer. Depth sensors. Toroidal beam. Floatation collar. Load cell shackle telemetry	✓	Diver tracking Inspection ROV Workclass ROV
1015	± 45°	194dB	2000m	60 days	150 hours	74mm	410mm	3.08kg/1.46kg	✓	Remote transducer Depth sensors Floatation collar	✓	Workclass ROV Towed fish AUV
1015H	± 30°	196dB	2000m	60 days	100 hours	74mm	410mm	3.08kg/1.46kg	✓	Remote transducer Depth sensors Floatation collar	✓	
1022	± 20°	202dB	4000m	60 days	100 hours	95mm	418mm	5.03kg/2.75kg	✓	Remote transducer Depth sensors Floatation collar	✓	
1030 SERIES MIDI												
1039	± 90°	191dB	4000m	90 days	150 hours	100mm	540mm	6.86kg/3.01kg	✓	Remote transducer Depth sensors	✓	Large Workclass ROV Cable trenching/jetting
1035	± 45°	200dB	4000m	90 days	60 hours	100mm	540mm	6.86kg/3.01kg	✓	Remote transducer. Depth sensors. Toroidal beam. Floatation collar. Load cell shackle telemetry	✓	Towed fish Crane/winch hook
1035H	± 45°	203dB	4000m	90 days	30 hours	100mm	540mm	6.86kg/3.01kg	✓	Remote transducer Depth sensors	✓	
1060 SERIES FATBOY												
1065	± 45°	203dB	4000m	90 days	110 hours	130mm	652mm	14.82kg/6.62kg	✓	Remote transducer Depth sensors	✓	Large workclass ROV Cable trenching/jetting
1062	± 15°	208dB	4000m	90 days	110 hours	130mm	652mm	14.82kg/6.62kg	✓	Remote transducer Depth sensors	✓	Deep water ROV Subsea mining
1050 SERIES SEABED												
1059	± 90°	188dB	4000m	120 days	1800 hours	125mm	1095mm	22.8kg/11.02kg	✓	Depth sensors Longer life batteries Floatation collar	✓	Dynamic positioning Reference beacons
1055	± 45°	195dB	4000m	120 days	1200 hours	125mm	1095mm	22.84kg/11.02kg	✓	Depth sensors Longer life batteries Floatation collar	✓	Long deployment applications
1055H	± 45°	200dB	4000m	120 days	500 hours	125mm	1095mm	22.84kg/11.02kg	✓	Depth sensors Longer life batteries Floatation collar	✓	Large mobile structure tracking
600 SERIES LOW FREQUENCY												
669	± 90°	191dB	3000m	90 days	100 hours [#]	130mm	710mm	15kg/7kg	✓	Remote transducer Depth sensors	✓	Deep water cable laying Cable repair Long range applications
666	± 60°	196dB	3000m	90 days	50 hours [#]	130mm	780mm	15kg/7kg	✓	Remote transducer Depth sensors	✓	
663	± 30°	199dB	3000m	90 days	50 hours [#]	130mm	800mm	15kg/7kg	✓	Remote transducer Depth sensors	✓	
659	± 90°	191dB	3000m	120 days	200 hours [#]	125mm	1100mm	21kg/11kg	✓	Remote transducer. Depth sensors Non-rechargeable batteries Floatation collar	✓	Long deployment applications
656	± 60°	196dB	3000m	120 days	100 hours [#]	125mm	1100mm	21kg/11kg	✓	Remote transducer. Depth sensors Non-rechargeable batteries Floatation collar	✓	
653	± 30°	199dB	3000m	120 days	100 hours [#]	125mm	1100mm	21kg/11kg	✓	Remote transducer. Depth sensors Non-rechargeable batteries Floatation collar	✓	
V-NAV												
1419	± 90°	184dB	600m	>18 months	168 hours	63mm	410mm	1.5kg/1kg	✗		✗	V-NAV. OBC. Time-lapse monitoring
RELEASE BEACONS												
Releases												
529P	± 90°	187dB	1000m	4 months [#]	70	100mm	810mm	11kg/6kg	✗	Syntactic floatation. 10 tonne release frame	✓	Oceanographic USBL calibrations Pipe laydown Cable repair
1519	± 90°	187dB	400m	12 months	70	110mm	500mm	4.66kg/1.4kg	✗	Syntactic floatation and line canister	✗	
1529	± 90°	187dB	500m	24 months	70	110mm	560mm	7.8kg/2.8kg	✗	Syntactic floatation and line canister	✗	
1559	± 90°	187dB	1000m	60 months	70	125mm	1350mm	19.6kg/8.7kg	✗	Syntactic floatation and line canister	✗	

Charge, Test and Configure

To meet the permutations of the beacon range, a comprehensive choice of ancillary devices are available for charging, testing and configuration.

	USB	Beacon Editor 'App'	1082 Smart Switch	1083 Multi-Charger	982 Smart Charger	3510 PAM Portable
1200 & 1300 SERIES MICRO	▲	■				●
1010 SERIES MINI		■	● ▲ ■	● ▲ ■		● ■
1030 SERIES MIDI		■	● ▲ ■	● ▲ ■		● ■
1060 SERIES FATBOY		■	● ▲ ■	● ▲ ■		● ■
1050 SERIES SEABED		■	● ■	● ▲ ■		● ■
600 SERIES LOW FREQUENCY					▲	●
V-NAV						● ■
500 RELEASE						●
1500 RELEASE						● ■



USB Connectivity and Beacon Editor 'App'

The small Micro beacons both make use of USB connectivity for charging via a PC, tablet or even a car adaptor. Channel configuration is available via a beacon editor app. This app is also compatible with 1000 Series beacons via a serial communications lead to PC.



1082 Smart Switch

The 1082 Smart Switch is a pocket-sized solution for 1000 Series beacon configuration, fast charge activation and monitoring. It is easy to operate with just 4 buttons, a back lit display and internal rechargeable battery.



Model 1083 Multi-Charger

The 1083 Multi-Charger provides independent simultaneous charge, configuration and test for multiple 1000 Series beacons. It can independently charge three 101x, 103x or 106x beacons or a single 105x Seabed beacon. The Multi-Charger is easy to operate with a large LCD backlit display, four stylised buttons complete with charge status indicators.

982 Smart Charger

The 982 Smart Charger is used to re-charge all 600 Series Low Frequency beacons. The unit has an easy to operate 4 - key menu with battery fault detection, responder test functions and an easily read illuminated LCD display. It switches to trickle charge upon completion of main charge.



3510 PAM Portable

The 3510 PAM Portable has been developed to meet the harsh operating conditions associated with offshore marine operations. It is housed in a water-proof, rugged enclosure with a clear and intuitive user interface, and a splash-proof key pad for on-deck operations. The PAM Portable is a versatile tool for multi-transponder configuration and testing including all Sigma spread spectrum positioning beacons and low frequency versions. Its multi-band transducer can also test the functionality of LF and MF beacons from other manufacturers. The 3510 PAM, with its 3190 dunking transducer, is used to command and control release beacons and facilitate telemetry operations. The dunker also allows the 3510 PAM to function as the topside transceiver for the V-Nav multi-beacon positioning system.

With on-going research and development in cutting edge technology and acute awareness of current and future industry needs, our commitment to our customers is second to none. We are equally determined to aid and assist our customers worldwide with a network of partners, suppliers and overseas Support Centres. Together, we offer engineering excellence, trusted products and a first class professional service on a global scale.



APPLIED ACOUSTICS
Underwater Technology

Applied Acoustic Engineering Ltd

Marine House, Marine Park
Gapton Hall Road
Great Yarmouth NR31 0NB
United Kingdom

- T** +44(0)1493 440355
- F** +44(0)1493 440720
- E** general@appliedacoustics.com
- W** www.appliedacoustics.com