Datasheet
Lightweight Release Transponder (LRT)

Part of Sonardyne's Coastal Acoustics product range, the Type 7986 Lightweight Release Transponder (LRT) has been developed from transponders capable of accurately positioning hundreds of seismic receiver nodes. It has both receive and transmit functions, unlike similar low-cost release transponders, enabling accurate slant ranges to be measured, release actuation to be confirmed and its position to be accurately determined.

The LRT is depth rated to 500 m making it the ideal choice for use in continental shelf waters. Field replaceable alkaline or long-life lithium battery packs give a listening life of 18 months and 51 months respectively. A 'screw-off' release mechanism ensures a positive release action that overcomes any biological growth and all external parts are made of high strength plastics that provide excellent environmental corrosion resistance.

LRTs are controlled using the Type 7967 Surface Command Unit (SCU) comprising a low-cost deck unit and remote transducer on 10 m of cable. The SCU is initially used to program the acoustic identity of the LRT, test the transponder and load the release nut prior to deployment. Once deployed, the deck unit can measure ranges to the transponder and prior to sending a secure release command, relocate the transponder. The SCU can be controlled via RS232 enabling raw range data to be logged to a PC.

An optional attachment for the LRT is a rope canister that allows items left on the seabed, for example tools, cables and salvage, to be quickly and easily hauled up.

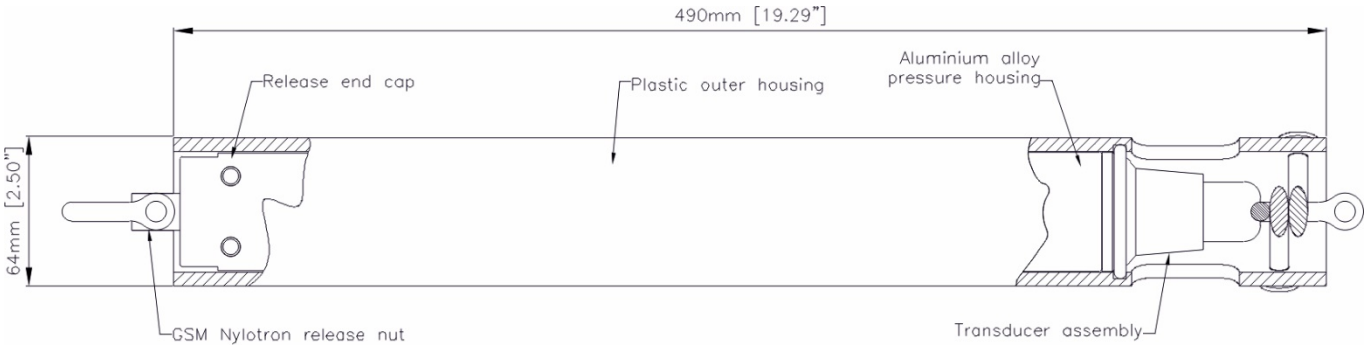
It works by mooring one end of the rope to the item on the seabed and the other end to the LRT via the attached canister of rope. As the transponder ascends to the surface, high strength rope is deployed from the canister. This line can then be used to pull up the item directly or retrieve heavier tag lines.

LRTs can be supplied with ±15° or ±30° tilt sensors. This allows the user to acoustically check that the LRT and its mooring have been correctly deployed on the seabed.

Key Features

- Safe Working Load[1] of 125 kg
- Depth rated to 500 m
- Up to 51 months deployment with long-life lithium battery pack
- Hundreds of secure identities; field programmable with deck unit
- Reliable, 'screw-off' release
- Rugged, compact design
- Compatible with Scout USBL, ROV-Homer, Homer-Pro and Prospector positioning/relocation systems

Specifications
Lightweight Release Transponder (LRT)



Feature		Type 7986
Depth Rating		500 m
Operating Frequency		HF (35–50 kHz)
Transmit Source Level (dB re 1 µPa @ 1 m)		185 dB
Receive Sensitivity (dB re 1 µPa)		<110 dB
Number of Unique Addresses		400 (field programmable)
Operating Mode		Always On (no on/off switch)
Battery Life	Alkaline	18 months
	Long-Life Lithium	51 months
Safe Working Load[1] (at 4:1 ratio)		125 kg
Release Load[2]		125 kg
Breaking Load[3]		500 kg
Proof Load[4] (a Proof Test Certificate is available upon request)		250 kg
Mechanical Construction		Anodised Aluminium Alloy, plastic and stainless steel
Dimensions (Length x Diameter)		490 x 63 mm (19.3 x 2.48”)
Weight in Air/Water		1.77/0.42 kg
Options/Spares	Rope Canister (Longer lengths available on request)	75 m (100 kg SWL) 120 m (250 kg SWL) 160 m (125 kg SWL)
	Tilt Sensor	±30° or ±15° (order Type 7986-000-06 only)
	Release Nut	Re-order Part No. 830-1641 (5 nuts supplied with each new LRT)
Surface Command Unit		Type 7967-000-02 (includes transducer and 10 m of cable)

[1] The maximum recommended working load. This is set as a quarter (1/4) of the Breaking Load[3] and allows for factors such as corrosion, fatigue, shock loads, harmonic loads, manufacturing defects and material defects.

[2] The maximum in-line load that the whole assembly can release whilst guaranteeing safe and reliable operation. Note that as the load is released in water, this is determined by the maximum upthrust from the buoyancy.

[3] The load that induces structural failure in one or more parts of the instrument causing the load to part from the release mechanism.

[4] The load to which the actual unit has been tested in the factory. This load should be periodically applied to demonstrate that the unit is still in a safe condition. This is usually twice (x 2) the SWL. A Proof Load Certificate can be provided upon request