

MAGNETIC LONGWIRE BALUN "MARINE"

The ideal antenna solution for yachting enthusiasts who want to stay in touch

Receivers

If you are planning a trip that goes beyond the inland waterways, radio, especially short-wave radio, is an essential part of any communications set-up. Weather forecasts from coastal stations and national broadcasting networks are essential to any safe voyage. With the aid of a decoder, weather maps and NAVTEX reception is also possible - it is no longer a luxury reserved for the commercial craft. For strong and reliable reception of maritime stations, beware of a simple portable short-wave radio. Coastal stations transmit on a large number of frequencies because reception conditions at night are different from those during the day. Some meteorological stations and the NAVTEX networks use long wave. The receiver should therefore be capable of continuous reception of frequencies between 100 kHz up to 30 MHz. Coastal stations and meteorological services also make use of what is termed "single sideband" modulation. On an ordinary domestic radio, SSB sounds very distorted and the contents of speech are unintelligible. So the radio must have the capability to receive "SSB".

To make transmissions easy to follow, the receiver should be able to fine tune in steps of 20 Hz or less. The radio should also offer good stability once tuned in. This is essential if reception of weather charts or NAVTEX is needed.

In addition, the ability to store the channels of frequently used information sources is more than a luxury....in times of trouble it is essential to be able to check frequencies quickly. All these factors mean that you should invest in a good quality, compact communications receiver. This is the next step up from a simple portable short-wave radio.

Use a stay as antenna

Communications receivers work best with an external antenna. Most are not equipped with a built-in telescopic whip. Such an external antenna is a problem for the water-sport enthusiast, especially for the yachtsman. There is often not enough room for an external long-wire, and active antennas for radio and television reception do not work on long-, medium- and short-wave. One solution is the use of an isolated stay (usually at the stern of the craft). Many yachts are now equipped with such a stay as standard. If not, it is easy to isolate the stay with the help of insulators which can be purchased ready-to-mount. The insulators are needed or the weak radio signals will simply leak away via the mast or the stern. The isolated stay is ideal as an antenna but it is important the signals it receives are connected properly to the receiver. A single wire between the stay and the HI-Z input (if available) on the radio gives a lot of signal loss and picks-up interference from all other electrical equipment on-board. If you simply attach a coaxial cable to the stay, there will be an enormous signal loss in the cable before it reaches the low-impedance (50 Ohm) input of the radio.

Matching the stay antenna to the radio

RF Systems have solved this mis-matching problem. The Magnetic Longwire Balun is a special impedance matching transformer which ensures that any isolated wire with a length of between 6 and 20 metres (18 - 66 ft) will perform as an antenna offering a frequency coverage between 100 kHz - 30 MHz. The MLB also uses coaxial cable between the antenna and receiver, as opposed to a simple open wire. Coaxial cable is easy to secure and ensures excellent screening from nearby interference sources (e.g. onboard computers, fluorescent lights, engine ignition, power inverters, etc.). The specially designed Magnetic Longwire Balun ensures a perfect match between the antenna and receiver: automatically! This means constant signal levels over the entire long-, medium- and shortwave ranges.

The Magnetic Longwire Balun

The Magnetic Longwire Balun is a tried and tested design currently used by ten-thousands of short-wave listeners around the world. However, the standard version of this product (see separate leaflet) is difficult to attach to a stay. RF Systems have therefore designed a special marine version of this product. The Magnetic Longwire Balun Marine is the ideal solution for those who want to combine pleasure at sea with safety.

The MLB Marine

The Magnetic Longwire Balun (MLB) "Marine" version is a product of RF Systems. It consists of a stainless steel cylinder 8 cm long and with a diameter of 25 mm. The cylinder is filled with epoxy resin which ensures that all the internal components are fully protected against vibration, shocks, salt water, ice, UV sunlight and the movement of the cable. The MLB is completely waterproof and is designed to withstand any climate, from tropical seawater- to polar- and hurricane area's.

The MLB is easily mounted on the isolated stay using the two supplied full stainless steel clamps. The ideal mounting position for the MLB is just above the insulator (see illustration). This ensures that the coaxial cable

doesn't come too close to the stay. Ultra-violet resistant nylon straps are also supplied. These are used to secure the coaxial cable. The MLB is supplied with 14 metres (42 ft) of coaxial cable. This cable may be shortened as desired. For larger yachts the MLB MARINE 30, with 30 metres coaxial cable is available. A PL-259 connector is also supplied to connect the antenna cable to the antenna input of a communications receiver. Coaxial cable offers a number of advantages. It is especially made for RF Systems to mil-specs and resistant to ultraviolet light as well as corrosion by sea water. It is easy to push the cable through the deck to lower levels, or use nylon clips or straps to guide the cable around walls or skirting-board. All this can be done without reducing the signal level. The lead-in coaxial cable is also shielded from interference generated by nearby electrical equipment.

The MLB "Marine" from RF Systems also has one more important feature. An isolated stay can cause serious problems during thunderstorms and static build-up. The MLB is designed to allow static electricity, which may build up on the antenna, to leak away harmlessly to earth. This means that the antenna (as well as the sensitive input circuitry of the receiver) can withstand anything except a direct hit of a lightning strike. It is essential, however, that the communications receiver is properly earthed. Connect a thick gauge wire between the earth connector on the back of the receiver to any metal plate or object which is in contact with the water, i.e. the metal hull. In the case of wooden or polyester boats look for a metal plate below the water line attached to the keel or the hull. Please note, however, that the MLB is not intended to be a replacement for a lightning conductor.

The MLB Marine from RF Systems can be used with a wire as short as 6 metres (18ft) which is adequate for reception of the short-wave spectrum (1.6-30 MHz). If good performance on long- and medium-wave is required, then the minimum length of the isolated stay should be 12 metres (36 ft). Note that the stern stay is not necessarily the only possibility. Any isolated wire suspended above the deck is a suitable antenna. The best omni-directional sensitivity is obtained when the antenna wire is hung at an angle of 30 - 60 degrees. For yachts without a suitable isolated stay and for motorboats, RF Systems produces the Lowe AA 150, a small completely waterproof stainless steel active antenna designed for the frequency range 30 kHz - 30 MHz. The Lowe AA 150 can be powered from 12 Volt DC on board supply. Also available is the very small DX 500 antenna system, which offers the possibility to receive simultaneously long, medium, shortwave, the VHF low bands, FM broadcast and VHF high (VHF channels for radio telephones) and UHF frequencies. The DX 500 antenna (just 40 cm high, 35 mm diameter) can replace all receiving antennas on-board

Other use

The Magnetic Longwire Balun "Marine" cannot only be used on board of ships, it is thanks to its extremely sturdy construction also very well suited for longwire antenna installations in polar-, tropical- and hurricane area's. Professional ready-to-mount longwire antennas (MLBA MK 3 and MLBA MK 4) with flexible stainless steel antenna wire and attached MLB Marine (see separate page MLBA antennas) are in use at Dutch embassies and BBC monitoring sites.

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