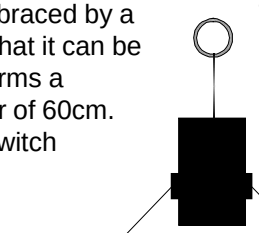
WL500 - Window Loop antenna 3.5 - 30MHz

The WL500 is a compact active loop antenna specifically designed to provide good reception while travelling or operating from a temporary / compromised monitoring location where large external antennas are not practical. The wire loop will fold down and fit into a small bag, operation is even possible using an internal 9V dry battery.

The loop is constructed of flexible twin cable braced by a centre pole which splits into two sections so that it can be easily stored away. When set up, the loop forms a diamond shape with an approximate diameter of 60cm. The loop covers 3.5 to 30MHz with a range switch mounted at the termination point of the loop (switching at 10MHz).

A length of screened cable is supplied which is terminated in RCA (PHONO) plugs to connect the loop to the control box. The control unit provides preselection and amplification terminated in a BNC socket for connection to the receiver. Excellent strong signal characteristics are achieved, typically 16dB gain with an IP^3 of +14.5dBm. The control unit can be powered from an internal 9V 006P (PP3) battery (current consumption is around 16mA), alternatively external 12V DC may be used *(power supply included in some market areas).*



The optional 500LM ferrite bar antenna detaches from the base unit, the resulting two packages are compact enough to easy fit into a small bag or bottom of a case when travelling.

The WL500 control unit comprises of a quality robust metal box 93 x 67 x 30mm in size (excluding projections) with front panel preselection / power switch and LED. Rubber feet are attached to the bottom of the control box to prevent marking of a table top and to stop the box from sliding during operation.

The opposite end of the control box has an RCA (PHONO) socket to accept the screened cable from the short wave loop (or optional 500LM element), the socket is labelled 'Loop'. The output feed to a short wave receiver is via a BNC socket, this is labelled 'RX' and a BNC-BNC coaxial patch lead is provided.

The WL500 comprises of the following:

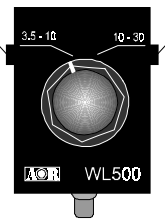
- ***loop*** *with support fixings (providing cable termination and range switch)*
- ***control box*** *(tuning of the antenna and power switch)*
- ***screened cable*** *(RCA plugs fitted) for connection of the loop to the control box*
- ***BNC patch lead*** *(for connection of the control box to the short wave receiver)*
- ***9V battery and support hook*** *(power supply also provided in some market areas)*

The WL500 is supplied in a compact display bag measuring approx 39 x 14 x 8 cm and weighs just 640g.

If your receiver cannot accommodate a BNC plug, inter-series adapters are widely available.

The WL500 can be powered from an internal battery or from an external 12V DC supply. A 1.3mm power socket is provided (centre positive) and is labelled 'DC 12V'. If you would like to operate the WL500 from a vehicle supply, an optional DC lead with cigar plug is available (DC8200).

While the WL500 will operate below 3.5MHz, performance on the lower bands can be enhanced by the addition of the **optional 500LM bar element**. The 500LM bar element is 130mm in length with a selector switch for long wave (LW) or medium wave (MW) operation and connects to the control box in place of the short wave loop. A termination box is provided so that the 500LM bar may be rotated through 360 degrees in order to make the best use of the directional properties for peaking the wanted signal while nulling out unwanted transmissions or local noise. Of course the directional characteristics when listening to distant sky-wave signals will not be as pronounced as local ground-wave.

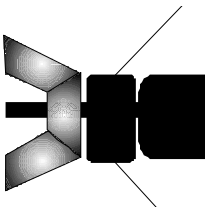


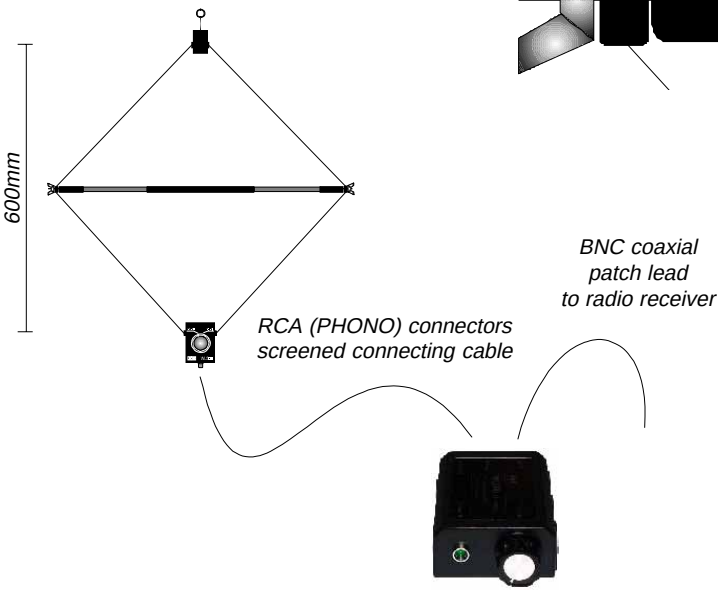
...compact short wave loop - ideal for travelling

Using the WL500 active loop antenna

1. Assemble the short wave loop (see illustration on the front of this page). Slide the two supporting wooden poles together then feed the threaded section through the round eyelet at each side of the wire loop, attaching the wing-nut to hold the assembly together. The top of the loop has a support ring, attach this to a suitable anchor point on or close to a window, or use the supplied s-hook.

2. Connect the screened cable between the loop antenna and 'Loop' socket of the control box using the RCA (PHONO) connectors.





3. Connect the BNC-BNC coaxial patch lead between the 'RX' socket of the control box and short wave radio receiver (if your radio cannot accommodate a BNC plug, use an inter-series adapter).

4. Decide which method of power you will use, either internal 9V battery (supplied) or external 12V DC power.

If using the internal battery, remove the six screws from the base of the control box (cross headed) and remove the bottom plate. A metal cradle holds the 9V battery in place, ensure you connect observing the correct polarity. Refit the bottom plate (its symmetrical).

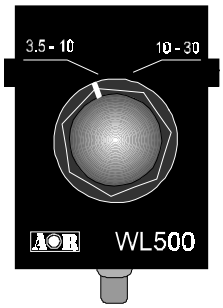
Note: If removing the battery, ensure that the battery connector cannot short circuit inside the control box. Only use quality batteries and immediately remove exhausted batteries or when not using the WL500 for a period of time (to reduce the chances of chemical leakage). The battery should provide many hours operation. There is no need to remove the battery when powering the WL500 from external DC.

If using an external power supply, keep the power supply as far away from the WL500 and receiver as practical to reduce noise. If using the optional 500LM element, you may wish to consider use of a low noise regulated power supply to reduce the effects of noise from diode rectifiers. Recommended power supply is 12V DC at 150mA (accepted voltage range is 12 - 16V DC, a voltage regulator is built-into the WL500 control unit).

5. The control box preselection knob is labelled 'Tuning' and has a rotary action with an incorporated power switch which activates in the fully anticlockwise position (7 o'clock).

Rotate the tuning control clockwise, the front panel green LED will indicate that the unit is powered.

6. Decide which frequency band you wish to use and switch the loop range appropriately. The lower range is 3.5MHz - 10MHz and the upper range is 10MHz - 30MHz, you will find that the band edges are quite accurately defined when you start tuning the loop.



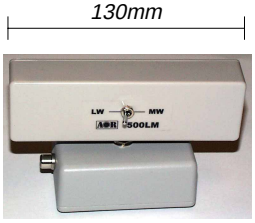
7. Tune the radio receiver to a known active frequency then adjust the 'Tuning' control of the WL500 to achieve maximum strength on the receiver's signal strength meter (s-meter) so that the wanted signal sounds clearest. If your receiver does not have an s-meter, simply adjust the WL500 for best receive signal... the higher the frequency, the further clockwise the control will need to be rotated.

Adjust the position of the loop element until the signal is strongest and any interfering signal is nulled. It is advisable to locate the WL500 in or close to a window in order to achieve the best possible reception. It is possible to use the WL500 on frequencies below 3.5MHz (such as MW) but performance will be reduced and the loop will no-longer tune (so no adjustment is required). To enhance performance on the lower bands, consider the optional 500LM element. **The WL500 is NOT intended for transmit purposes.**

Remember, in order to achieve good results, the WL500 (like all antennas) should ideally be located with a clear view in the direction you want to monitor (considering the great-circle map). If the WL500 is hemmed in, the preselection and directional properties may assist in dragging out signals from the noise, but will not be a substitute for a well sited antenna. To avoid the potential pick-up of noise from the receiver (particularly its display), it may be worth experimenting with the position of the WL500 and optional 500LM with respect to the receiver (on top / along side / separated by a few metres etc), also where possible, experiment with the RF earth.

Optional 500LM element

Replace the short wave loop with the 500LM. The two halves of the 500LM connect via a 6.3mm jack plug to enable rotation for best results. Select the appropriate band MW / LW using the toggle switch. Rotate for best signal and tune using the WL500 control unit.



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