

The I-PRO Home from Pro Antennas

A centre-fed vertical dipole with capacity hat end loading



Caption

VERTICAL DIPOLE. The I-Pro Home Multiband HF Vertical Antenna, to give it its full name, is the latest product from Carl Kidd, G4GTW, at Pro Antennas. Having tested his DMV Pro, I-Pro Traveller and Dual Beam Pro antennas previously, I was keen to see what this one had to offer.

The antenna is a centre-fed vertical dipole with capacity hat end loading, looking like an H on its side. Capacity hat loading was chosen

to keep the inductive loading to a minimum and so reduce losses. It is designed to be non resonant on all of the amateur bands. A large un-un transformer (of unspecified impedance transformation) is fitted to the centre of the dipole, which reduces the resultant SWR down to something your rig's internal ATU can handle. The maximum power is 400W PEP.

The antenna is 5m long with the top and bottom elements spanning 2.5m. It comes

with a heavy duty galvanised mounting bracket, suitable for posts of between 1.5"–2". Once mounted on a suitable stake (not supplied) it actually sits just under 6m tall and weighs in at 4.5kg.

If the antenna looks familiar, it is very similar to Carl's Dual Beam Pro reviewed in May's *RadCom*. The difference being that this one is ground mounted and, being vertical, it is omnidirectional.

Aerospace alloys are used throughout, as are non-corrosive stainless steel fittings. Solid GRP rod is used for the important insulating sections. This material provides excellent dielectric properties with great structural strength.

The antenna will cover all five amateur bands from 20m-10m. If you have an external ATU it can also be persuaded to cover 40m and 30m (an average internal ATU will not handle the high SWR the antenna presents on these bands.) There is no reason why the antenna shouldn't be used for short wave listening either, from about 5-30MHz.

HARDWARE. The I-Pro Home comes in two boxes – one containing the hardware and balun, the other being a long cardboard tube with the elements. On unpacking everything it was time to study the instructions – carefully. Do take the time to read them as it is very easy to put the antenna together incorrectly (as I found out).

First you attach the un-un to the centre insulator and vertical elements. Then you bolt on the aluminium support rod, which holds the un-un firmly with a worm-drive (Jubilee) clip. You then add the capacitive end-loading elements at each end. I managed to put the whole thing together in an hour, but I did have to remove and reattach the un-un as I had it on the wrong side of the support rod.

Having assembled the antenna you then attach the coax, via a PL259, with suitable weatherproofing such as self-amalgamating tape and drop it onto the mounting post. The instructions say that for all-weather use the antenna should be guyed (guys not supplied). I would endorse this – if leaving it up for more than a few hours, guying with nylon cord is essential as the antenna is quite top-heavy. The coax has to be arranged to come away from the antenna at about 45°. This minimises interaction.

On connecting the antenna up to about 20m of Mini-8 coax I found the raw SWR figures as shown in the table. As you can see an internal ATU should be able to find a 1:1 match on all of the bands 14MHz – 29MHz. My rig could also match 10MHz, but I know



Caption

that other manufacturer's internal ATUs won't match much beyond an SWR of 3:1.

IN USE. As for performance, I set up a five-band commercial trap vertical for the test for comparison, complete with a ground stake and eight 25ft tape measure radials, courtesy of my local pound shop. This antenna cost about the same as the I-Pro Home. Purists will argue that for an effective ground plane you really need 60-120 radials, but space and time prevented this.

The benefit of the I-Pro Home is that it doesn't need a ground plane, which was reflected in the shorter setting-up time. This shouldn't be underestimated, as you will be up and running in an hour or so, whereas you could spend days putting a decent set of radials down for a ground-mounted vertical.

On bands where the five-band trap vertical wouldn't work (17m and 12m) I compared the antenna with my usual doublet and dipoles.

Pro Antennas will soon offer an optional 30 and 40m resonating kit for £179.95, which will improve performance on those bands. This was not tested and therefore we decided to look at the I-Pro Home on the 5 bands from 20m through to 10m.

On 20m (14MHz) the antenna shone, with noise levels similar to my doublet and signal strengths the same to UA3 (European Russia), EW8 (Belarus) and HG (Hungary). Compared with the five-band trap vertical, signals from around Europe including Russia were generally better on the I-Pro Home by about 1-2 S-points. This was very significant as just about every EU signal I found on 20m was better on the I-Pro Home than the trap vertical. On longer paths the difference was less marked.

The five-band trap vertical doesn't cover 17m, so I switched to my dipole/doublet. The I-Pro Home was better on 17m with RW3XZ in Moscow up 2 S-points on my dipole/doublet.



Caption

Other signal strengths pretty much matched my other antennas on this band, but sometimes the I-Pro Home bettered them by about 1-2 S-points. There were some weak CW signals that were inaudible on anything other than the I-Pro Home.

On 15m (21MHz) the I-Pro Home bettered my doublet (which doesn't work well on 15m) and generally beat the trap vertical by about 2 S-points. Despite poor band conditions at the time, a number of stations were worked, each giving better reports on the I-Pro Home. A station purporting to be T31A (Kiribati), but in reality a pirate, was much stronger on the I-Pro Home – shame he wasn't real!

Imam, YB4IR in Sumatra, Indonesia was much louder on the I-Pro and would not have been workable on the trap vertical. The I-Pro Home is a good performer on 15m.

On 12m (24MHz) it was once again equal to or slightly better than my other wire antennas into Russia and Ukraine. 5B4AGQ (Cyprus) was better on the I-Pro than the doublet by 1 S-point. Once again the trap vertical doesn't play on 12m.

The 10m (28MHz) band was pretty dead at the time of testing, but with the few stations I did hear, performance appears to be similar to 12m. The I-Pro Home and trap vertical were neck and neck on contacts into Spain and Italy and it easily beat the longer wire antennas. It was neck and neck with the dedicated 10m horizontal wire dipole around Europe.

In conclusion then, the I-Pro Home will give good service on 20m-10m and, as pointed out in the specifications, reduced performance is to be expected on 30m and 40m.

It is a simple design with no traps or loading coils to break. With the coax coming away at 45° it does take up quite a lot of space, but is otherwise low profile. It could be argued that the area required to lay out a number of quarter wave ground radials required for the



Caption

Manufacturer's Comment

The I-Pro Home is a very low angle radiator and this is best demonstrated during greyline periods. A small reservation is that the reviewer missed the opportunity to exploit this property against the horizontal wire antennas. However, I am pleased my centre feed arrangement was shown to be much more efficient without the requirement of radials or grounding when compared to the trapped vertical. The 1 to 2 S-point advantage on some signals is impressive, especially when you consider the simplicity of the I-Pro Home installation.

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www.proantennas.co.uk.

trap vertical would take up considerably more space. If you are an occasional operator you could also erect the I-Pro Home in a few minutes, perhaps for just contests/special events, storing it on the floor of your garage or laying it flat in your garden out of sight of the neighbours when not in use.

You don't have to bother about setting up a decent array of radials and it covers bands that most trap verticals can't. The un-un feed method has a lot to commend it, being simple and sturdily built. Losses appear to be low and as long as your internal or external ATU can handle the small mismatch you should be fine.

I would, however, urge you to guy the antenna carefully for safety's sake and longevity.

The I-Pro Home costs £229.00, plus next day UK shipping of £9.95. For more information about the antenna see www.proantennas.co.uk or call 01489 789960.

SWR Results (at end of 20m of Mini8 coax)

7.10MHz - SWR 10.5:1
10.1MHz - SWR 5.6:1
14.2MHz - SWR 2.5:1
18.14MHz - SWR 1.9:1
21.2MHz - SWR 1.7:1
24.9MHz - SWR 1.9:1
28.5MHz - SWR 2.0:1
29.6MHz - SWR 1.9:1
50.1MHz - SWR 2.3:1