

Alinco DM330MW UK MKII power supply



The front panel of the Alinco DM330MW UK MkII, a well-built power supply.

Power supplies, while not the most exciting piece of equipment, are essential and we all need one (or two) in the shack.

This review is for those who are new to the hobby and will help introduce the types and the different connectors you may come across. I will also review the new Alinco DM330MW UK MKII power supply.

I remember when I first came into the hobby being somewhat surprised that I needed to buy a separate power supply for my transceiver – shouldn't the rig just come with one? Unlike regular consumer equipment, the majority of transceivers and their accessories rely on a separate power supply.

So why exactly do we need a power supply? We need to convert the high voltage mains alternating current (AC) into low voltage direct current (DC). Transceivers are typically designed to work with 13.8V of DC, so clearly, we need to do something to convert the ~230V of mains supplied AC.

A primer on power supplies

The first choice you must make when choosing a power supply, is whether you want a linear power supply or switch mode

power supply (SMPS)? Both have advantages and disadvantages.

Linear power supplies convert high voltage AC into low voltage AC using a transformer, and then convert this into DC voltage. Switch mode power supplies convert AC into DC first, then convert this into the desired voltage.

You have probably already got several SMPS in your house; your mobile phone and laptop chargers use this type. Linear power supplies, however, are a bit more specialist these days and tend to be used specifically for audio and RF applications.

The major advantage a linear supply has is that, unlike a SMPS, it produces little to no noise, which is great for our RF needs. An SMPS on the other hand creates noise interference, due to switching, that can create electromagnetic and RF interference.

So, with this in mind, you might ask why would we consider a SMPS? Well, there are several disadvantages with linear power supplies:

- Heat dissipation – they are much less efficient, so therefore produce a lot more heat.
- Bulky heat sink – As a result of the extra heat, they need a big heat sink to keep cool.
- Step-down transformer – Again, this is bulky and heavy.

You might be able to see where this is going;

in conclusion, linear supplies are bulky and weigh a lot!

So, while a SMPS produces more noise; it has the following key advantages:

- Efficiency – they are a lot more efficient, therefore generate less heat.
- Low heat – Because they are efficient, they do not need such a bulky heatsink.
- Lightweight – The step-down transformer is smaller and lighter, add to this the reduced need for a heavy heatsink and the result is that SMPS are much lighter and smaller than linear supplies.

Because of these convincing advantages, you will mostly come across the SMPS types. If they are produced for amateur radio, then they tend to already have good EMI filters and RF shielding to minimise the noise/interference they can produce. Couple this with the much smaller size and weight and most amateurs are happy to use them in the shack – plus they are much more portable for travel use too.

Different types of connectors

Now that we understand the two types of power supplies, we should consider some of the key types of connectors we will use to connect our equipment's power cables to the power supply unit.



The back panel of the Alinco power supply.

Fork and Ring terminal connectors are very popular, I tend to prefer the Fork type, because they are easier to connect and remove, the ring type however require you to fully unscrew the thumbscrews on the power supply. If you do not intend to change your shack equipment much, then go for the ring type, otherwise choose the fork type.

Anderson PowerPole connectors are frankly excellent, they make it difficult to mistake the connector polarity, due to their design. I personally love Anderson PowerPoles on all my equipment where possible.

Banana connectors are quite common too. These have a push connector, so no need to use thumbscrews, just push the connector into the power supply.

There are other types of connectors, but these are the main types you will come across.

The Alinco DM-330MW UK MKII

The Alinco DM330MW UK MKII is a 30 amp switch mode power supply offering a number of useful functions for the shack. It is advertised as a 'high efficiency, compact, lightweight and high-performance switching mode power supply'. It is offered for sale by Nevada Radio and comes with a generous two-year warranty. This model is specifically designed for the UK market and conforms with UK safety regulations specifications and is CE approved.

It can provide a variable voltage from 5V up to 15V DC, delivering up to 25 amps (30A peak). It comes with a large, illuminated

combination volt/amp meter, a front panel voltage adjustment and customer-defined output voltage preset. The ripple is rated at less than 15mVp-p and has three in-built circuit protection functions for short-circuit, over temperature, and current limiting.

This model is the deluxe version of the Alinco DM330FXE, the main difference being that this model has improved filtering, for even better performance when used with transceivers and receivers.

Out of the box

My initial impression during unboxing was positive, it is supplied in a well packaged and branded box, complete with an instruction booklet. The instruction booklet is written in good English and covers everything you need to know about this relatively uncomplicated power supply.

A frequent problem with switch mode power supplies that are not designed for our hobby is that they can generate noise and interference. During a field day, I once witnessed a laptop charger wipe out the whole of the 80m band, producing S9 of noise upon plugging it in. Suffice to say we turned it off and logged using paper!

This Alinco power supply is different, it has been specifically designed for radio use and has low noise and a noise offset circuit. A noise offset function is always useful with switch mode power supplies. You will sometimes find they can cause noise at a certain frequency, the noise offset adjustment allows you to shift the noise to another frequency. The Alinco has a dual

control knob on the front to control both the voltage and noise offset. I would prefer two separate knobs here for safety, it would be easy to mistake one for the other. Either way, I did not encounter any noise from the Alinco power supply, but it is nice to know it is there if you need it.

Regarding the voltage adjustment knob, this has been designed with a notch at 13.8V, which is likely to be the voltage you will want to run your transceiver and most other shack equipment from.

The power supply weighs in at 2.5kg (with the UK mains lead), so it is lightweight enough to take out of the shack for field days. The build quality is robust, and it feels well made, the heatsink is integrated with the case. Its dimensions are 190mm wide, 69mm high and 181mm deep. I have seen smaller supplies that would be more useful if you had to travel a lot or were going on DXpeditions, but really it is small enough otherwise.

A word about connectors

The Alinco power supply does come with a wide range of power connectors, which gives you some good options for connecting your equipment.

On the back panel, you will find the ubiquitous binding posts, supplying up to

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Front panel meter showing the supplied voltage and current.

30A at peak. Due to the 25A limit (and 30A at peak), this is where you would connect your transceiver.

On the front panel, you will find two pairs of snap-in terminals supplying 5A each. These would be particularly useful for shack accessories like an antenna tuning unit (ATU), power meter, etc.

On the front panel you will also find a cigar outlet supplying 10A. This is a bit less common on shack power supplies but could be useful for powering a receiver or handheld with a cigarette power adaptor. You could even add USB connections by sticking a car USB charger in it!

Even though the Alinco comes with a wide range of common connectors, I would have liked to have seen Anderson PowerPole connectors included and even a few USB charging points. Apart from this, it has everything you would expect.

Other features

Another nice feature is the ability to set a voltage preset. Using the Preset switch and Preset Adjust dial on the back of the unit, you can effectively fix the voltage for the unit to supply. Enabling this deactivates the manual voltage adjustment control on the front panel,

possibly saving you from any nasty mishaps.

The illuminated analogue meter on the front is pleasant to use. It is a dual-purpose meter displaying either the voltage or the current being delivered. You need to press a switch on the front to change between the two – I would have preferred two separate meters here instead but cost then becomes a factor. The backlight illumination is sufficient but could be brighter, it seems to be provided by two dim green LEDs either side.

Drawing 23 amps on transmit resulted in no discernible noise from the power supply, in fact I was hard pushed to even tell if the fan was on. It is one of the quieter power supplies I have used. It got a little bit warm to the touch, so I imagine the passive heatsink on top of the case is sufficient to dissipate the heat under normal use.

Conclusion

The UK model on review here retails for £149.95 from Nevada. The Alinco DM330MW UK MKII is a well-made and thought-out power supply dedicated for radio use and the UK market. The build quality is good and it feels like a quality item. Attention has clearly been spent on the design and functionality. It has several useful features, not seen on all power supplies. Thanks to Nevada (www.nevadaradio.co.uk) for supplying the review model.

Websearch

[1] www.nevadaradio.co.uk/product/alinco-dm330mw-uk-mkii/

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