

(Review/Guide) Antminer A3 815 Gh/s, 1275W Siacoin [Blake (2b)] ASIC miner

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The most up-to-date version of this review/guide is available at Bitcointalk.org forum:

<https://bitcointalk.org/index.php?topic=3341695>



Figure 1 Antminer A3. Picture copyright (c) Bitmain.

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1. General information, other items needed

Antminer A3 is a SiaCoin [Blake (2b)] ASIC miner using 28nm ASIC chip technology, manufactured by Bitmain Technologies (headquarters in Beijing, China).

Antminer A3 is a standalone miner with a built-in controller unit.

The advertised nominal hashrate for miner is 815 Gh/s with a nominal power consumption of 1275 Watts. It weighs 4.2 kg and outer dimensions are 321mm(L) x 125mm(W) x 208mm(H).

Bitmain has slowly moved into making miners for lots of different mining algorithms and therefore for many different coins,

and this is their first ASIC miner that they have manufactured for the Blake (2b) algorithm.

At the moment SiaCoin is the most popular coin among the Blake (2b) algo cryptocurrencies.

Bitmain: www.bitmain.com

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Antminer A3

Hash rate: 815 Gh/s
Power consumption: 1323W +7% (220 VAC Power @ 25 °C, 93% conversion efficiency with APW3++ power supply)
Power efficiency: 1.56 mJ/MH +7% (220 VAC Power @ 25 °C, 93% conversion efficiency with APW3++ power supply)
DC voltage input: 11.60 - 13.00VDC
ASIC chip type: BM1720 [28nm Blake (2b) ASIC chip]
ASIC chip quantity per unit (miner): 180 chips
Number of hash boards per unit: 3 hash boards
Cooling: 2x 120mm x 38mm 12VDC 1.65A fan; manufacturer & model: Nidec W12E12BS11B5-57
(front and back, in a push-pull configuration, rotating max. about in the 6000rpm area).
Weight: 4.2 kg
Dimensions: 321mm(L) x 125mm(W) x 208mm(H)

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Figure 2 Technical specifications.

Other items needed:

- A server grade power supply with at least 10x PCI-E 6-pin connectors, everyone with a dedicated cable, at least 18AWG wires. Bitmain APW3++ is the official customs power supply, but for example any common brand server grade power supply with at least 1400W power capacity will do the job just fine as well.
- C13 power cord suitable to your country's electrical socket
- Ethernet cable to go to your router/switch
- Computer to set initial pool and configuration settings.

2. Unpacking

Bitmain is usually quite good at keeping their promised delivery date schedule and there was no schedule issues with this A3 unit order delivery.

When I buy hardware from Bitmain web shop, Fedex is usually the cheapest courier choice for me and it only took about five working days to deliver this A3 miner from China to Finland.

Inside the cardboard box you can find out that the miner is wrapped in a bubble wrap and there is another protection layer as it is also protected by custom shaped protecting foam material. The packaging is nice and tight, there is no extra room inside the cardboard box, which is a good thing. This kind of packaging design is good and it makes very little chance for possible damages during the shipping.

I had a APW3++ power supply unit ready for this unit as I had bought it earlier, so only the miner was delivered to me this time.



Figure 3 Packaging material.

3. Overview

Here is a nice set of pictures showing a detailed view on the A3 miner.

You can click these pictures invidually to show a high resolution version of the picture located in a [Imgur.com](#) picture album.

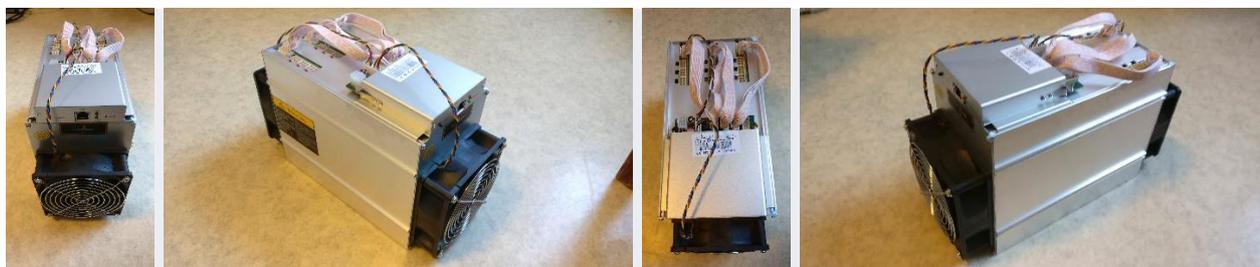


Figure 4 Antminer A3, picture set 1.



Figure 5 Antminer A3, picture set 2.



Figure 6 Antminer A3, picture set 3.



Figure 7 Antminer A3, picture set 4.



Figure 8 Antminer A3, picture set 5.



Figure 9 Antminer A3, picture set 6.



Figure 10 Antminer A3, picture set 7.



Figure 11 Antminer A3, picture set 8.

4. Installation

The installation process is very simple and straight forward with the A3, especially if you are already familiar using other miner devices manufactured by Bitmain.

You need to connect the Ethernet cable to your miner and the other end to the router/switch device.

And then you need a server grade power supply preferably with at least 1400W power capacity. You need to install all ten pieces PCI-E 6-pin power cables to the power headers found at the top side of the miner.

One cable for the controller board and nine cables for the hash boards.

When the initial setup is ready, power on the miner and start by finding the miner IP address, as the A3 miner comes with DHCP as the default mode in the network settings. This means it will automatically get an IP address from the router device DHCP IP address pool.

You can find out what is the miner IP address by checking it at your router web configuration page, or by using the IP Report tool that Bitmain provides at their website, or by using any other IP address scanner software available.

When you know the miner IP address, you are ready for the next step, **Configuration**.

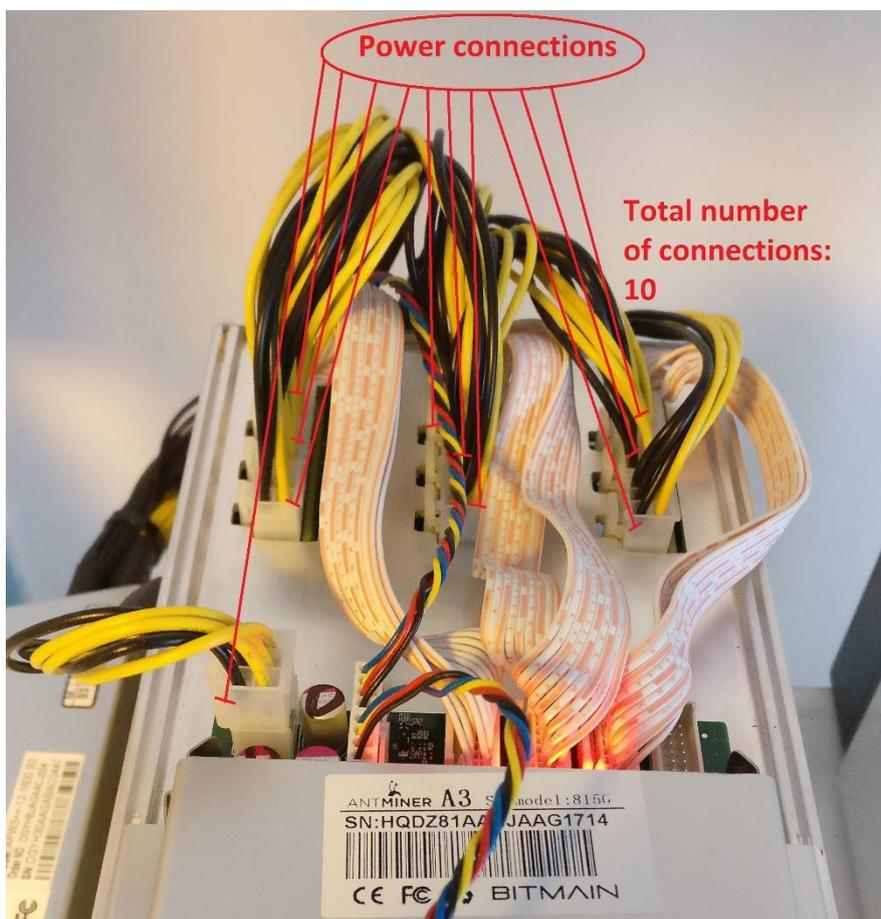


Figure 12 Power connections.

5. Configuration

What you do first is that you open a web browser, enter the miner IP address in the browser address field and press enter.

It will ask you for the user credentials.

The default username is **root** and the default password is also **root**.

After that it is time to setup your mining pool settings.

Click and go to the **'Miner Configuration'**.

You can put the pool stratum address, username and password for three different pools in a priority order: Pool 1 > Pool 2 > Pool 3.

After you are ready with the pool settings, press **'Save&Apply'**.

This saves and applies the settings and also reboots the mining process.

You can also check the official user guide for both install and configuration instructions.

The official Antminer A3 user guide can be found here at Bitmain.com:

<https://shop.bitmain.com/support.htm>

There are also some good tutorial videos available at YouTube website.

Antminer A3 tutorial video by Cryptocrane:

<https://www.youtube.com/watch?v=1i3p3x0P31U>

The user interface is the exact same as we have used to see in other Bitmain miners in the past, as it is based on their custom OpenWrt firmware design.

Here is a bunch of screenshot images showing a detailed view on the Antminer A3 web configuration page features.

You can click these pictures individually to show a high resolution version of the picture located in a [Imgur.com](#) picture album.

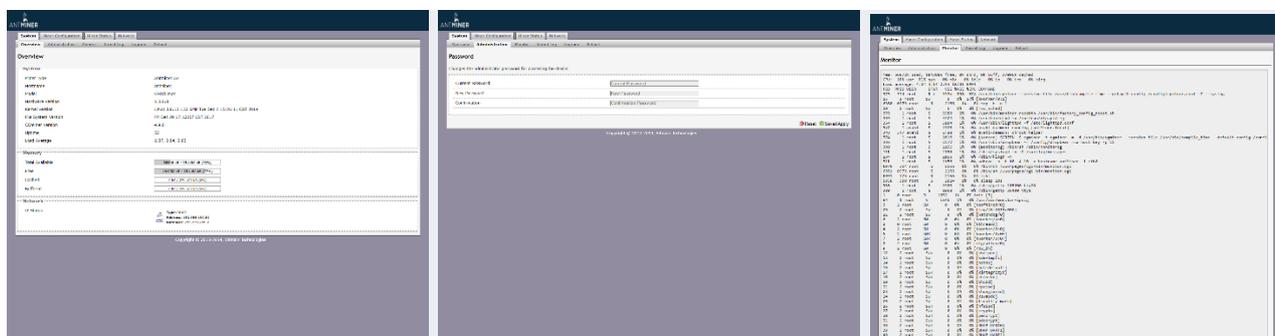


Figure 13 Web configuration page, picture set 1.

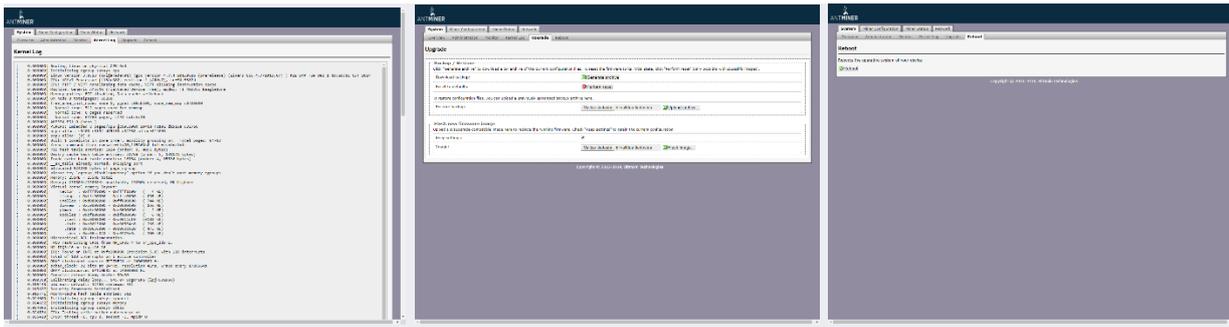


Figure 14 Web configuration page, picture set 2.

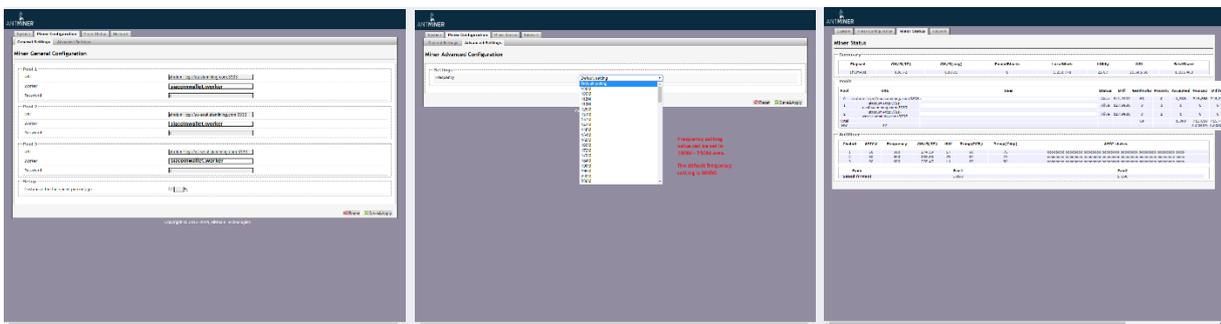


Figure 15 Web configuration page, picture set 3.

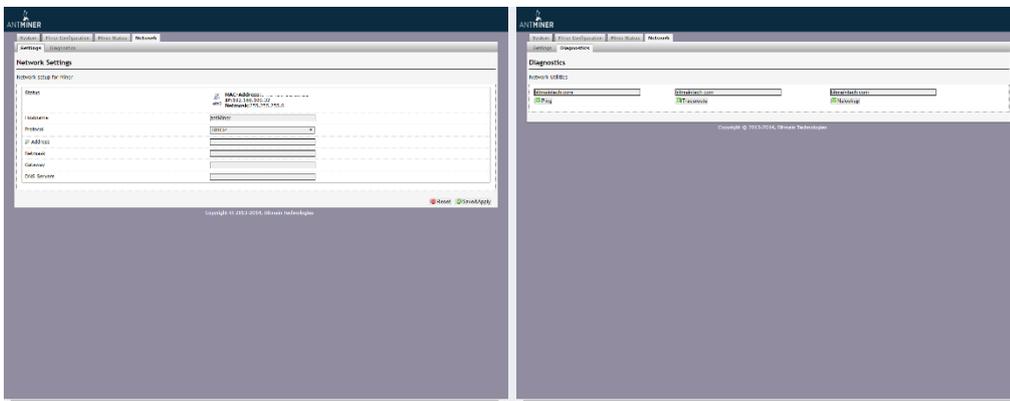


Figure 16 Web configuration page, picture set 4.

Then it was naturally time to move forward and measure the power consumption at wall.

The power measurement was done with **Perel E305EM6-G** energy meter, the technical specifications data sheet can be found here:

<https://www.perel.eu/downloads/22/e305em6e305em6ggbnlfresdptpl.pdf>



Figure 18 Perel E305EM6-G.



Figure 19 Power measurement.

Stable result for the power consumption (at wall) was 1369 W, when the hash rate was averaging in the 830 Gh/s area.

The power supply used in this test was Bitmain APW3++ 1600W power supply.

With these results we can calculate the power efficiency **at wall**.

$$1369 / 830000 = 1.6494 \text{ mJ per Mh/s.}$$

Bitmain says that the power efficiency is 1.56 mJ per MH/s (+7%), so it is quite close to the spec and within the advertised power efficiency area.

7. Conclusion

I've own multiple different Antminers in the past and I was interested to try this new A3 miner as well. Bitmain is really trying to spread all over the cryptocurrency miners industry to have a close to monopoly position, as they are pretty much constantly releasing new hardware for different mining algorithms.

All in all, I have to say that the A3 does it's job just as advertised and there was no issues in the setup or while operating it.

Cooling design is done in the same fashion as with other Antminers in the past. There are individual heat sinks installed on the ASIC chips and two high rev cooling fans installed in both ends of the steel tube case. It is a push-pull configuration and it provides a huge airflow through the steel tube case.

This means that the cooling is quite effective and it produces a lot of noise.

The noise makes it an unattractive choice for home mining operation.

It remains to be seen that how well will Siacoin and other Blake 2b algorithm coins eventually withstand the huge amount of hash rate that has suddenly entered in the network after these ASIC miners became available in the market.

If you got any questions, feel free to drop them in the [Bitcointalk.org](https://bitcointalk.org) forum thread. I will try to give my best answer.

8. How to order

You can make the order by visiting their web shop online at their website, when they have a batch open for sales.

See more details at the official website.

Bitmain usually announces beforehand about their sales by posting an announcement at their Twitter and Facebook page.

Bitmain: www.bitmain.com

It is highly recommend to only use their official webshop, so that you can avoid any possible scamming attempt.