



Z15k

User Guide

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BITMAIN

BITMAIN TECHNOLOGIES INC.

www.bitmain.com

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1 Overview

The Z15k server is one of the BITMAIN's newest versions. Power supply APW17 is part of Z15k server. All Z15k servers are tested and configured prior to shipping to ensure easy set up.



Figure 1-1 Z15k server

Caution:

- (1) Please refer to the layout above to place your goods in usage in case of any damage.
- (2) The equipment must be connected to an earthed mains socket-outlet. The socket-outlet shall be installed near the equipment and shall be easily accessible.
- (3) When the equipment is power off, be sure to power off all power inputs.
- (4) DO NOT remove any screws and cables tied on the product.
- (5) DO NOT PRESS the metal button on the cover.
- (6) Please note that the actual server shall prevail.

1.1 Z15k Server components

The main components and control panel of the Z15k server are shown in the figure below.

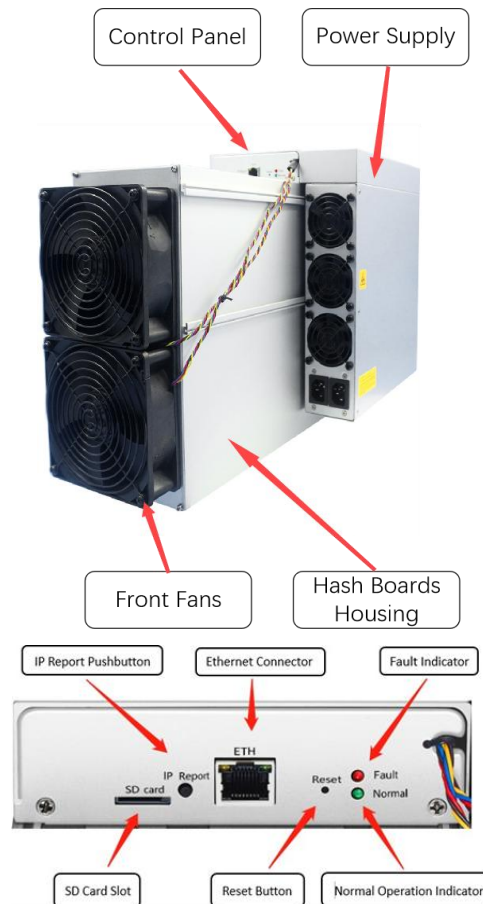


Figure 1-2 Main components and control panel of Z15k server

The following sections provide a detailed description of the function and specific role of each component.

Power Supply:

The APW17 power supply serves as the energy source for the Z15k server.

NOTE:

- Power supply APW17_1215a is part of Z15k server. For detailed parameters, please refer to the specifications below.
- For APW17, one ANTWIRE-20SP power cord is needed and should be connected to PDU.

Control Panel:**Ethernet mode:**

The device is equipped with an RJ45 Ethernet interface that supports data transfer speeds of 10/100 Mbps.

LED Indicators:

The green LED indicates normal operation of the Ethernet interface.

The red LED signifies a fault condition within the Ethernet interface, requiring attention.

Function Activation:

The IP report function can be activated by pressing the raised button.

The reset function can be activated by pressing the recessed button, allowing for quick troubleshooting and maintenance.

SD Card/Micro USB Slot:

The SD Card can be used to connect a SD card for data transfer.

1.2 Product Specifications

Table 1-2 Product Glance

Product Glance	Value
Model	Z15k
Version ⁽¹⁻¹⁾	525K-10
Crypto algorithm Coins	Equihash ZEC/ZEN
Typical Hashrate, Ksol/s ⁽¹⁻²⁾	525
Power on wall @25°C, W ⁽¹⁻²⁾	2483
Power efficiency on wall @25°C, J/Ksol ⁽¹⁻²⁾	4.73

Table 1-3 Detailed Characteristics of Product

Detailed Characteristics	Value
Power supply	
APW17 Power supply AC input voltage range, V ⁽²⁻¹⁾	220-277V AC
Power supply AC Input Frequency Range, Hz	50-60
Power supply AC Input current, A	20
Adapted AC output power requirement, W	4000
Hardware configuration	
Quantity of hash chips	18
Quantity of hash boards	3
Network connection mode	RJ45 Ethernet 10/100M
Server size (Length*Width*Height, w/o package), mm	428*195*290
Server size (Length*Width*Height, with package), mm	597*317*427
Net weight, kg	16.9
Gross weight, kg	18.8
Noise @25°C, dBA ⁽²⁻²⁾	75
Environment requirements	
Operation temperature, °C	-20~40
Storage temperature, °C	-20~70
Operation humidity(non-condensing), RH	10%~90%
Operation altitude, m ⁽²⁻³⁾	≤2000

Notes:

(1-1) The APW17 power supply serves as the energy source for the Z15k server.

(1-2) The Hashrate value, Power on wall, and Power efficiency on wall are all typical values. The actual Hashrate value fluctuates by $\pm 3\%$, and the actual Power on wall and Power efficiency on wall fluctuate by $\pm 5\%$.

(2-1) Caution: Wrong input voltage may cause server damaged.

(2-2) Max condition: Fan is under max RPM(rotation per minute).

(2-3) When the miner is used at an altitude from 900m to 2000m, the highest operating temperature decreases by 1°C for every increase of 300m.

2 Setting up the Server

NOTE:

- The file IPReporter.zip is supported by Microsoft Windows only.

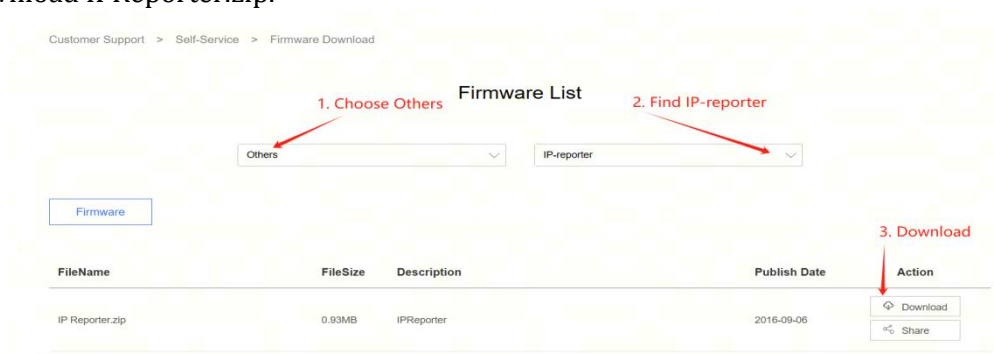
2.1 Setting up the Server

To set up the server:

1. Go to the following site:

<https://file12.bitmain.com/shop-product/firmware/IP%20Reporter.zip>.

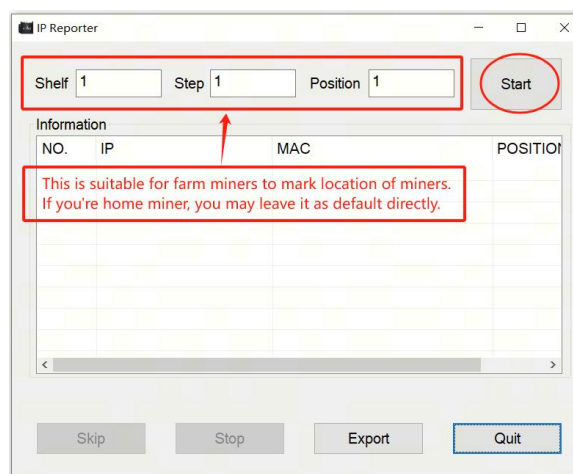
If the link is invalid, please visit the official firmware download page (<https://service.bitmain.com/support/download>) and select as shown in the image to download IPReporter.zip.



2. Download the following file: IPReporter.zip.
3. Extract the file.

NOTE:

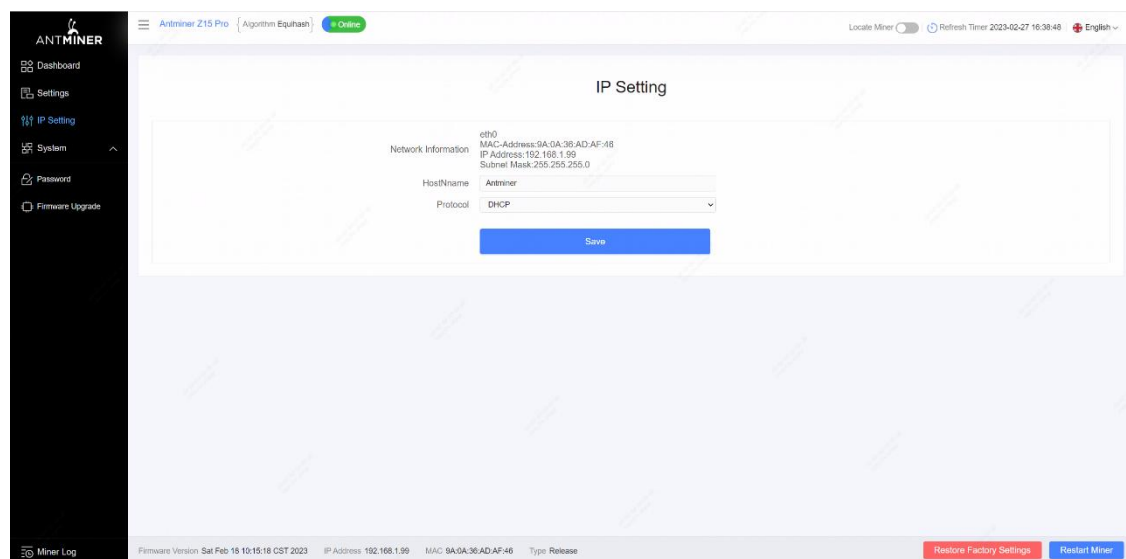
- The default DHCP network protocol distributes IP addresses automatically
4. Right-click **IPReporter.exe** and run it as Administrator.
 5. Select one of the following options:
 - **Shelf, Step, Position** – suitable for farm servers to mark the location of the servers.
 - **Default** – suitable for home servers.
 6. Click **Start**.



7. On the control panel, click the IP Report button (its location is shown in Figure 1-2).
Hold the button down until it beeps (about 5 seconds).
The IP address will be displayed in a window on your computer screen.



8. In your web browser, enter the IP address provided.
9. Proceed to login using **root** for both the username and password.
10. In the Protocol section, you can assign a Static IP address (optional).
11. Enter the IP address, Subnet mask, gateway and DNS Server.
12. Click "Save".
13. Click <https://support.BITMAIN.com/hc/en-us/articles/360018950053> to learn more about gateway and DNS Server.

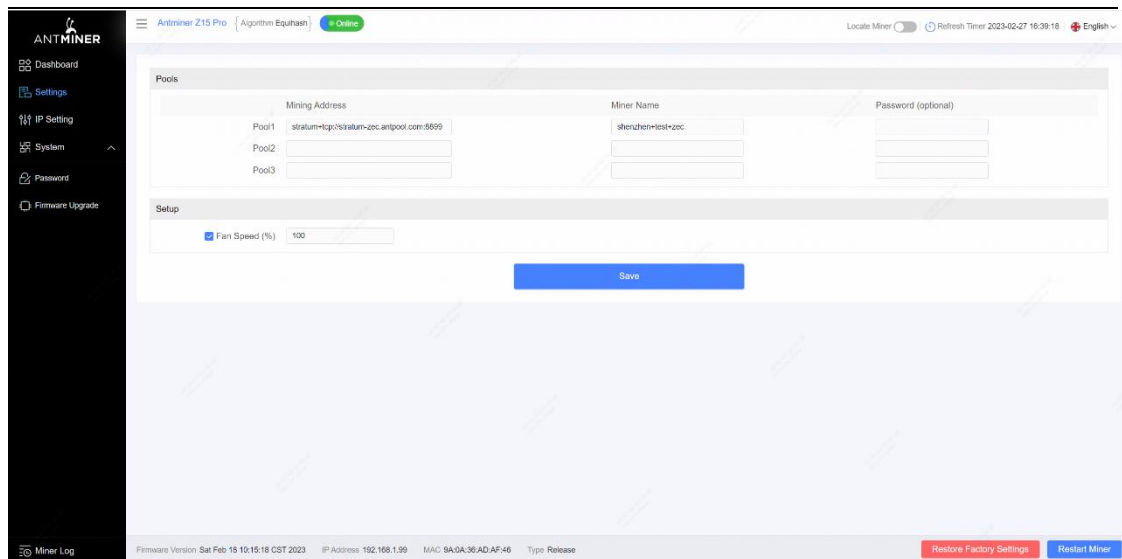


2.2 Configuring the Server

Setting up the Pool

To configure the server:

1. Click **Settings** as below.



2. Set the options according to the following table:

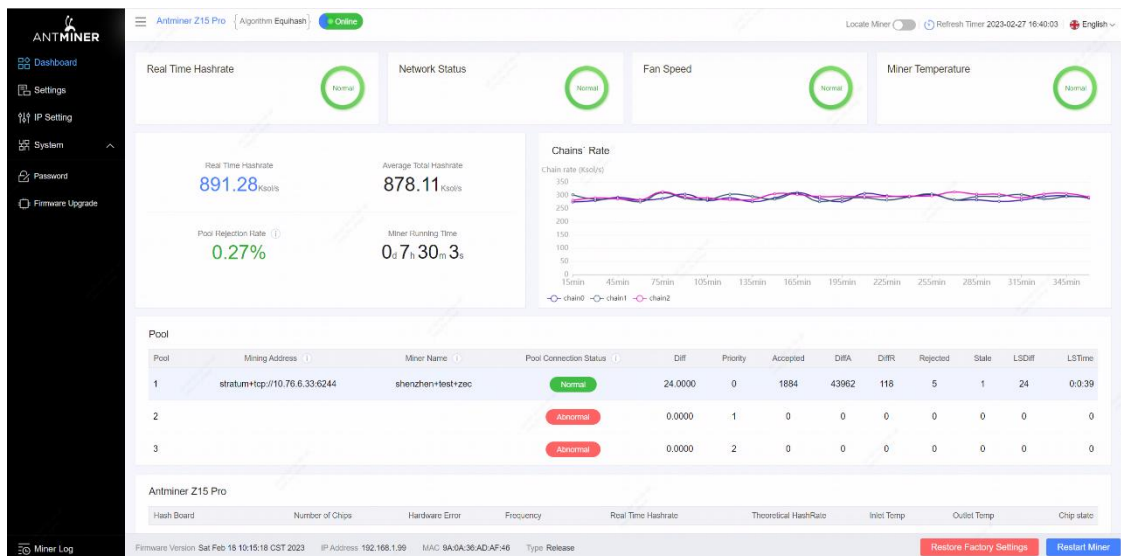
Option	Description
Mining address	Enter the address of your desired pool. The Z15k servers can be set up with three mining pools, with decreasing priority from the first pool (pool 1) to the third pool (pool 3). The pools with low priority will only be used if all higher priority pools are offline.
Name	Your worker ID on the selected pool.
Password (optional)	The password for your selected worker.

3. Click **Save** after the configuration.

2.3 Monitor your Server

To check the operating status of your server (taking Z15k 860K as an example):

1. Click **dashboard** marked below to check the server status.



2. Monitor your server according to the descriptions in the following table:

Option	Description
Number of chips	Number of chips detected in the chain.
Frequency	ASIC frequency setting.
Real Hashrate	Real-time hashrate of each hash board (GH/s).
Inlet Temp	Temperature of the inlet (°C).
Outlet Temp	Temperature of the outlet (°C).
Chip state	One of the following statuses will appear: The Green Icon - indicates normal The Red Icon - indicates abnormal

3. Monitor your server according to the LED indicator light:

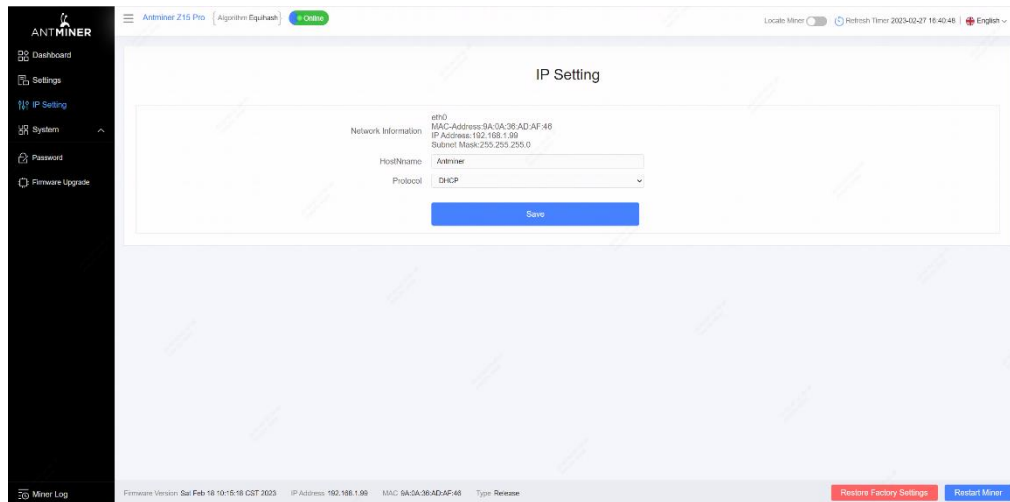
Status	Fault Indicator(RED)	Normal Indicator(GREEN)
Normal	OFF	ON
Over temperature	ON	OFF
Network disconnection	ON	OFF

2.4 Administering your Server

2.4.1 Checking your Firmware Version

To check your firmware version:

1. Enter the backend of your server, find the firmware version at the bottom.
2. File System Version displays the date of the firmware your server uses. In the example below, the server is using firmware version **20230218**.

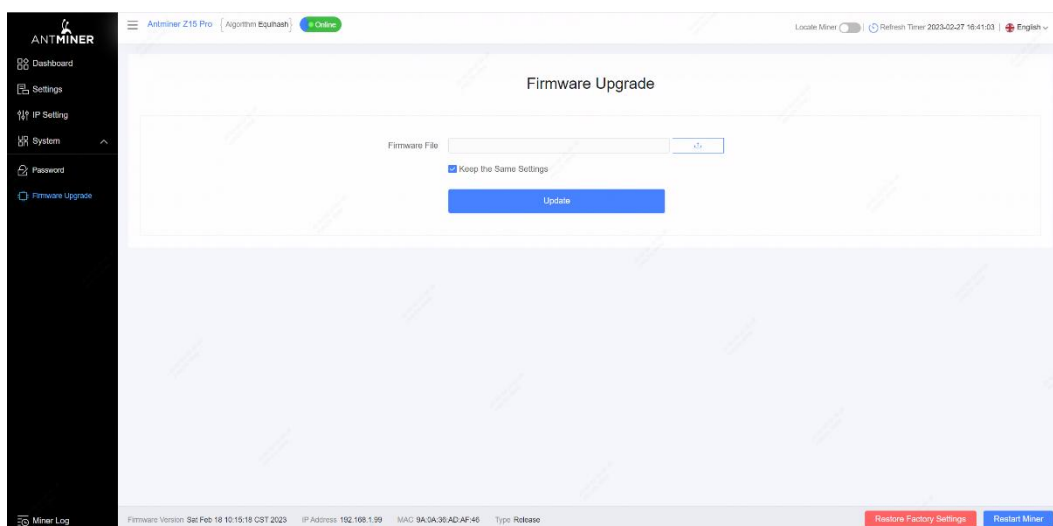


2.4.2 Upgrading your System

Caution: Make sure that the Z15k server remains powered during the upgrade process. If power fails before the upgrade is completed, you will need to return it to BITMAIN for repair.

To upgrade the server's firmware:

1. In System, click Firmware Upgrade.



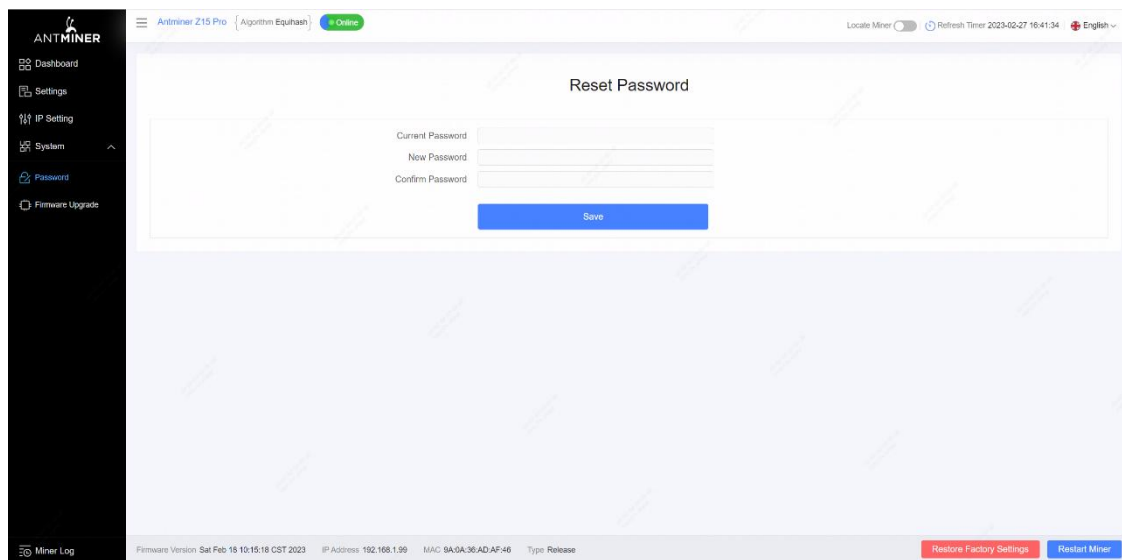
2. For Keep Settings:
 - (1) Select **"keep settings"** to keep your current settings (default).
 - (2) Unselect **"keep settings"** to reset the server to default settings.

3. Click the  button and navigate to the upgrade file. Select the upgrade file, then click Update.
4. When the upgrade is completed, restart the server. It will return to the settings page.
5. Click one of the following options:
 - **Reboot** - to restart the server with the new firmware.
 - **Go Back** - to continue mining with the current firmware. The server will load the new firmware next time it is restarted.

2.4.3 Modifying your Password

To change your login password:

1. In System, click the Password tab.
2. Set your new password, then click **Save**.



The screenshot shows the Antminer Z15 Pro web interface. On the left is a dark sidebar with navigation links: Dashboard, Settings, IP Setting, System, Password, and Firmware Upgrade. The main content area is titled 'Reset Password' and contains three input fields: 'Current Password', 'New Password', and 'Confirm Password'. Below these fields is a blue 'Save' button. At the top of the main area, there's a status bar with 'Antminer Z15 Pro', 'Algorithm Equihash', 'Online' status, 'Locate Miner' toggle, 'Refresh Timer 2023-02-27 16:41:34', and 'English' language selector. At the bottom, a footer bar displays 'Firmware Version Sat Feb 18 10:15:18 CST 2023', 'IP Address 192.168.1.99', 'MAC BA:5A:36:AD:AF:46', 'Type Release', and two buttons: 'Restore Factory Settings' and 'Restart Miner'.

2.4.4 Restoring Initial Settings

To restore your initial settings

1. Turn on the server and let it run for 5 minutes.
2. On the controller front panel, press and hold the **Reset** button for 10 seconds.

Caution: Resetting your server will reboot it and restore its default settings. The red LED will automatically flash once every 15 seconds if the reset is operated successfully.

2.4.5 Error Code

Here is the server error code and the corresponding reasons and suggestions:

Error Code	Reason	Suggestion
R:1	Average total hashrate is low	Update the firmware to the latest version, replace the power supply, or return to factory for repair
R1:1	Chain1 is broken or has low hashrate	Check if chain1 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
R2:1	Chain2 is broken or has low hashrate	Check if chain2 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
R4:1	Chain3 is broken or has low hashrate	Check if chain3 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
R8:1	Chain4 is broken or has low hashrate	Check if chain4 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J1:1	Chain1 has bad ASIC	Update the firmware to the latest version, replace the power supply, or return to factory for repair
J2:1	Chain2 has bad ASIC	Update the firmware to the latest version, replace the power supply, or return to factory for repair
J4:1	Chain3 has bad ASIC	Update the firmware to the latest version, replace the power supply, or return to factory for repair
J8:1	Chain4 has bad ASIC	Update the firmware to the latest version, replace the power supply, or return to factory for repair
N:1	Average total hashrate exceeds the sale hashrate too much	Update the firmware to the latest version

N:2	Frequency is reduced too much	Update the firmware to the latest version
V:1	Power initialization error or power output voltage error	Check power output wiring, update the firmware to the latest version, replace the power supply, or return to factory for repair
V:2	Power supply is not calibrated	Update the firmware to the latest version, replace the power supply, or return to factory for repair
J:8	The number of hashboards is less than the design	Check if the hashboard connection is normal, or replace the hashboard
P:1	High temperature protection	Check if the environment temperature is normal, or check if the gel on the hashboard is effective
P:2	Low temperature protection	Check if the environment temperature is normal
J1:4	Chain1 EEPROM data error	Redo the factory test for chain1
J2:4	Chain2 EEPROM data error	Redo the factory test for chain2
J4:4	Chain3 EEPROM data error	Redo the factory test for chain3
J8:4	Chain4 EEPROM data error	Redo the factory test for chain4

J:6	Temperature sensor error	Check if the hashboard connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J1:5	Chain1 PIC error	Check if chain1 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J2:5	Chain2 PIC error	Check if chain2 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J4:5	Chain3 PIC error	Check if chain3 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J8:5	Chain4 PIC error	Check if chain4 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
M:1	Memory allocation error	Update the firmware to the latest version, replace the control board, or return to factory for repair
J1:2	The number of chain1 chips is less than the design	Check if chain1 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J2:2	The number of chain2 chips is less than the design	Check if chain2 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J4:2	The number of chain3 chips is less than the design	Check if chain3 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair
J8:2	The number of chain4 chips is less than the	Check if chain4 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair

	design	
L1:1	Chain1 voltage or frequency exceeds the limit	Update the firmware to the latest version, or return to factory for repair
L2:1	Chain2 voltage or frequency exceeds the limit	Update the firmware to the latest version, or return to factory for repair
L4:1	Chain3 voltage or frequency exceeds the limit	Update the firmware to the latest version, or return to factory for repair
L8:1	Chain4 voltage or frequency exceeds the limit	Update the firmware to the latest version, or return to factory for repair
L:2	Cannot find the mixed level	Update the firmware to the latest version, or return to factory for repair
L1:2	Chain1 voltage or frequency mismatch	Update the firmware to the latest version, or return to factory for repair
L2:2	Chain2 voltage or frequency mismatch	Update the firmware to the latest version, or return to factory for repair
L4:2	Chain3 voltage or frequency mismatch	Update the firmware to the latest version, or return to factory for repair
L8:2	Chain4 voltage or frequency mismatch	Update the firmware to the latest version, or return to factory for repair
N:4	Network connection is	Check if the network connection is normal

	lost	
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3 Environmental Requirements

Please ensure that your server operates in accordance with the following environmental requirements.

3.1 Basic Environmental Requirements

3.1.1 Climatic Conditions

Table 5-1 Requirements of climatic conditions

Descriptions	Requirements
Operating Temperature, °C	-20-40
Operating Humidity, RH	10-90%(non-condensing)
Storage Temperature, °C	-20-70
Storage Humidity, RH	10-90%(non-condensing)
Altitude, m	<2000

3.1.2 Site Requirements of the Server Running Room

Please ensure that the server operating room is kept away from industrial pollution sources:

- (1) For heavy pollution sources such as smelters and coal mines, maintain a distance of more than 5 km.
- (2) For moderate pollution sources such as chemical industries, rubber, and electroplating industries, maintain a distance of more than 3.7 km.
- (3) For light pollution sources such as food factories and leather processing factories, maintain a distance of more than 2 km. If unavoidable, choose a site in the perennial upwind direction of the pollution source.

Please do not set up your location within 3.7 km of the seaside or a saltwater lake. If this is unavoidable, ensure that the structure is as airtight as possible and equipped with air conditioning for cooling.

3.1.3 Electromagnetic Environmental Conditions

Please keep your site away from transformers, high-voltage cables, transmission lines, and high-current equipment. For example, there should be no high-power AC transformers (>10KA) within 20 meters, and no high-voltage power lines within 50 meters. Additionally, keep your site away from high-power radio transmitters; for example, there should be no high-power radio transmitters (>1500W) within 100 meters.

3.2 Other Environmental Requirements

The server running room shall be free of explosive, conductive, magnetically conductive and corrosive dust. The requirements of mechanical active substances are shown below.

3.2.1 Mechanical Active Substances

Table 5-2 Requirements of mechanical active substances

Mechanical Active Substance	Requirement
Sand, mg/m^3	≤ 30
Dust (suspended), mg/m^3	≤ 0.2
Dust (deposited), $\text{mg}/\text{m}^2\text{h}$	≤ 1.5

3.2.2 Corrosive Gas

Table 5-3 Requirements of corrosive gas

Corrosive Gas	Unit	Concentration
H ₂ S	ppb	< 3
SO ₂	ppb	< 10
Cl ₂	ppb	< 1
NO ₂	ppb	< 50
HF	ppb	< 1
NH ₃	ppb	< 500
O ₃	ppb	< 2
Note: ppb (part per billion) refers to the unit of concentration, 1 ppb stands for the volume ratio of part per billion.		

4 Regulations

4.1 Federal Communications Commission (FCC)

FCC Notice:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

4.2 Industry Canada

CAN ICES-003(A) / NMB-003(A)

4.3 European Community

Warning: Operation of this equipment in a residential environment could cause radio interference.

UAB Bitmain Development Lithuania

Vilnius, Bistrycios g.40-21

EU WEEE

Disposal of Waste Equipment by Users in Private Household in the European Union:



This symbol on the product or on its packaging indicates that this product

must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handling it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

4.4 Taiwan ROHS

設備名稱：服務器

型號：Z15k

單元	限用物質及其化學符號					
	鉛 (Pb)	汞 (Hg)	鎘 (Cd)	六價鉻 (Cr ⁶⁺)	多溴聯苯 (PBB)	多溴二苯醚 (PBDE)
外殼	○	○	○	○	○	○
電源	—	○	○	○	○	○
管道配件	—	○	○	○	○	○
控制板	○	○	○	○	○	○
算力板	—	○	○	○	○	○
線材組件	○	○	○	○	○	○
備考 1. “超出 0.1 wt %” 及 “超出 0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 備考 2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 備考 3. “—” 係指該項限用物質為排除項目。						

4.5 FCC Supplier's Declaration of Conformity

Supplier's Declaration of Conformity

Trade Name: BITMAIN



Model Number: Z15k

Responsible Part---U.S. Contact Information

Company: Bitmain Technologies Delaware Limited

Street Address: 100 Spectrum Center Drive, Suite 1255

City, State: City of Irvine, State of CA - California

Zip Code: CA 92618

Telephone number: +1 949-381-9884

Internet contact information: <https://www.bitmain.com/>

FCC Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4.6 EU Declaration of Conformity

BITMAIN

EU Declaration of Conformity

Manufacturer's Name: BITMAIN DEVELOPMENT PTE. LTD.

Manufacturer's Address: 1 Raffles Place, #36-01 One Raffles Place, Singapore 048616

For the following equipment

Trade Mark:  

Product: Server

Model No.: Z15k

is herewith confirmed to comply with the requirements set out in Directive 2014/35/EU, Directive 2014/30/EU, and Directive 2011/65/EU. Compliance with 2014/35/EU and 2014/30/EU are evaluated by applying the following standards:

Safety standard: EN 62368-1:2014+A11

EMC standard: EN 55032:2015+A11:2020(Class A); EN 55032: 2015;

EN 55035: 2017; EN 55035: 2017+A11:2020

EN IEC 61000-3-2: 2019; EN 61000-3-3: 2013+A1:2019

This declaration of conformity is issued under the sole responsibility of the manufacture.

Signature:

Date:

Position/Title:

5 Warranty

1. A 180-day warranty is provided starting from the shipping date. BITMAIN will cover shipping costs when shipping a replacement unit within the warranty period.
2. The warranty only applies to the original purchaser who purchased the machine directly from BITMAIN. Once the miner is resold, warranty coverage becomes the responsibility of the re-seller.
3. If the user fails to use the product per the given instructions, specifications, and conditions provided or changes the function settings of the unit without BITMAIN's prior consent, BITMAIN will not be liable for any damage arising therefrom.
4. Click <https://service.bitmain.com/support/policy> for a complete list of the Terms & Conditions that apply to all orders placed on <https://shop.bitmain.com>.

Note:

- Only new machines are eligible for a 180-day warranty; used machines are not included