ANTMINER

# S21 Hyd.

## User Guide

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BITMAIN

BITMAIN TECHNOLOGIES INC.
www.bitmain.com

# Table of Contents

# 1 Overview

The S21 Hyd. server is one of BITMAIN's latest products. The APW11 power supply is a crucial component of the S21 Hyd. server. All S21 Hyd. servers are thoroughly tested and configured before shipping to ensure easy setup.

Figure 1-1 S21 Hyd. server

**Caution:**

(1) Please refer to the layout above to place your equipment in their designated locations to prevent any damage.

(2) The equipment must be connected to an earthed mains socket. The socket shall be installed near the equipment and shall be easily accessible.

(3) **DO NOT** remove any screws or cables attached to the product.

(4) Please note that the actual server shall prevail.

(5) There must be an external specific surge protection device complying with IEC/EN 61643-11 either in front of the power supply or outside the end system (in a separate distribution box or as part of the building installation).

(6) **DO NOT** plug or remove the device when it is powered on.

(7) The external power supply must have a disconnecting device, which can disconnect L1, L2, and L3 simultaneously.

(8) The server needs to be manually restarted when the hashrate is abnormal.

(9) The S21 Hyd. server shall be used simultaneously with the ANTSPACE series. Please click BITMAIN Shop for more details on ANTSPACE series.

## 1.1 S21 Hyd. Server components

The main components and control panel of the S21 Hyd. server are shown in the figure below.

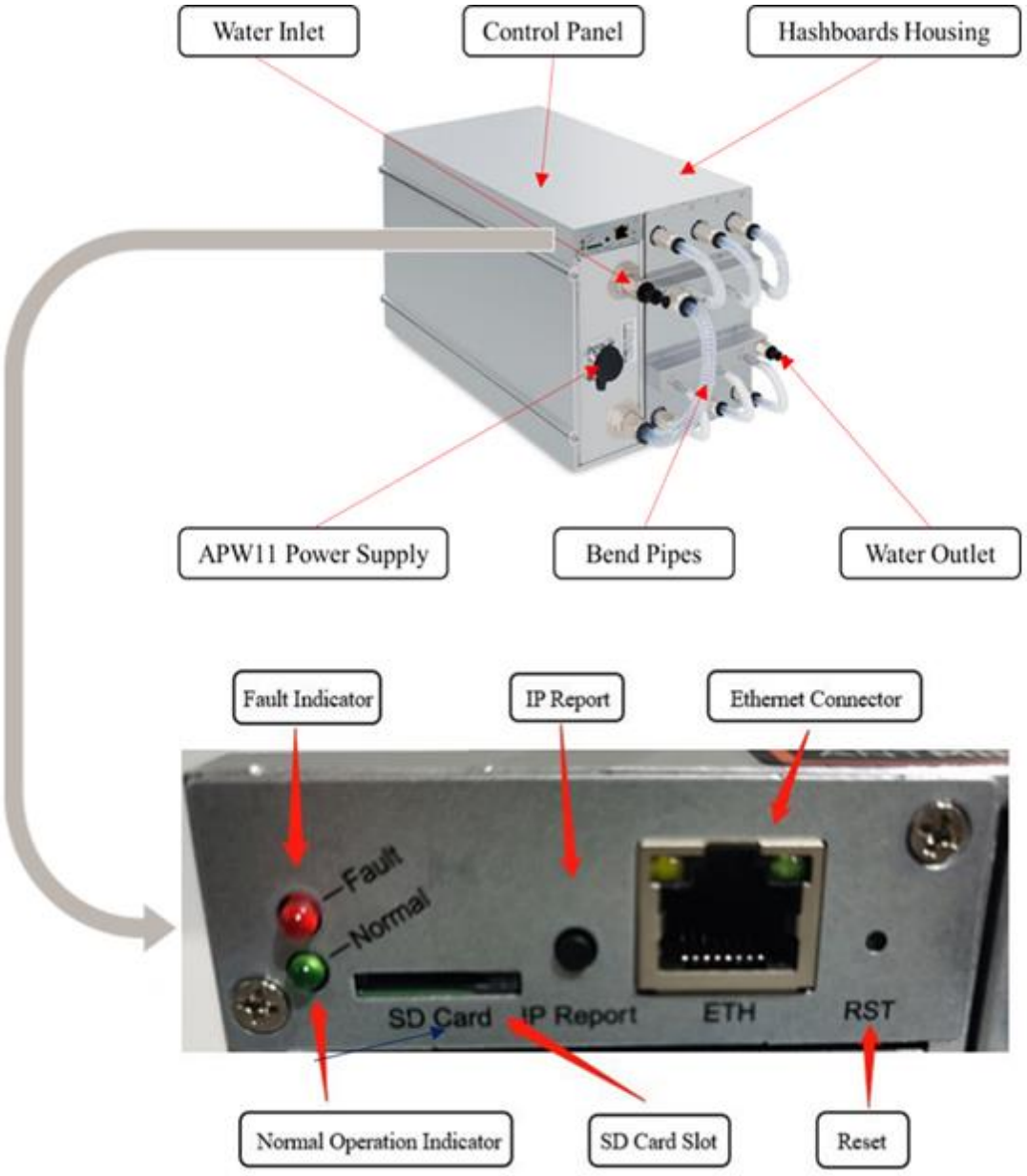



Figure 1-2 Main components and control panel of S21 Hyd. server

Figure 1-2 illustrates a type of the S21 Hyd. server control panel.

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

## APW11 Power Supply:

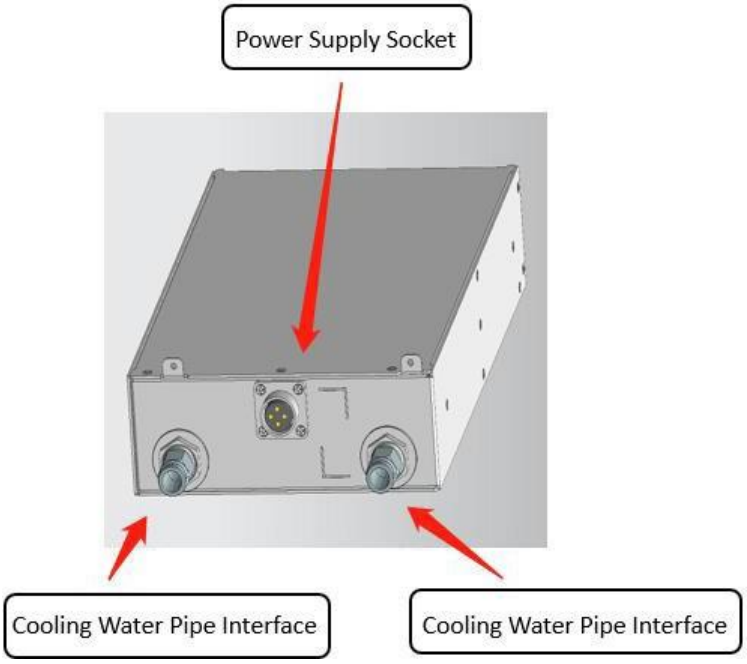



Figure 1-3 APW11 power supply

The APW11 power supply serves as the energy source for S21 Hyd. server.

**NOTE:**

- The power connector is designed to be waterproof.
- For detailed parameters, please refer to the specifications below.

## Bend Pipes, Water Inlet and Outlet:

Bend Pipes, water inlet, and water outlet refer to components in a cooling system that control the flow of coolant into and out of the system

**NOTE:**

- When inserting or removing the bend pipes, ensure they are securely tightened.

## 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 or micro USB interface for data transfer.

### Hashboards Housing:

The hashboards housing is an enclosure designed to store and protect the hashboards. Its primary functions include providing structural support, shielding the hashboards from external environmental factors, and ensuring proper heat dissipation and electrical connections.

## 1.2 Specifications of Partial Components

Customers can purchase the following parts for the S21 Hyd. on our official website at https://www.bitmain.com. The specifications for the above parts can be found on the parts sales page of our official website.

Table 1-1 Specifications of Partial Components

| Item Number | Accessories | Picture |
|---|---|---|
| 1 | Control Board for Hyd. Series |  |
| 2 | APW111721,17V-21.6V,RSPri_V1.25，EMC |  |

| | | |
|---|---|---|
| 3 | Manifold (for 3 hashboards) |  |
| 4 | Corrugated Pipe, D10, L=210mm, Transparent FEP |  |

## 1.3 Product Specifications

Table 1-2 Product Glance

| **Product Glance** | **Value** | | |
|---|---|---|---|
| Model | **S21 Hyd.** | | |
| Version | **m0-10** | | |
| Crypto algorithm/coins | **SHA256\|BTC/BCH/BSV** | | |
| Typical Hashrate, **TH/s**(1-1) | **335** | **319** | **302** |
| Power on wall @35℃(1-2), **Watt**(1-1) | **5360** | **5104** | **4832** |
| Power efficiency on wall@35℃(1-2), **J/TH**(1-1) | **16.0** | | |

Table 1-3 Detailed Characteristics of Product

| **Detailed Characteristics** | **Value** |
|---|---|
| **Power Supply** | |
| Phase | **3** |
| Input voltage, **Volt**(2-1) | **380~415** |
| Input frequency range, **Hz** | **50~60** |
| Input max current, **Amp** | **12** |
| **Hardware Configuration** | |
| Network connection mode | **RJ45 Ethernet 10/100M** |
| Server size (length*width*height, w/o package), **mm** | **339*173*207** |
| Server size (length*width*height, with package), **mm** | **570*316*430** |
| Net weight, **kg** | **12.3** |
| Gross weight, **kg** | **13.6** |
| **Environment Requirements** | |
| Inlet coolant temperature, **°C** | **20~50** |

| | |
|---|---|
| Coolant flow, **L/min** | **8.0~10.0** |
| Coolant pressure, **bar** | **≤3.5** |
| Working coolant(2-2) | **Antifreeze/ Pure water/Deionized water** |
| Coolant pH value | **Antifreeze: 7.0~9.0**<br>**Pure water: 6.5~7.5**<br>**Deionized water：8.5~9.5** |
| Diameter of coolant pipe connector, **mm** | **OD10** |
| Storage temperature, **℃** | **-20~70** |
| Operation humidity(non-condensing), **RH** | **10~90%** |
| Operation temperature, **℃** | **-20-50** |
| Operation altitude(2-3), **m** | **≤2000** |

**NOTE:**

(1-1) The hashrate value, power on wall, and power efficiency on wall are all typical values. The actual hashrate value fluctuates by ±3%, and the actual power on wall and power efficiency on wall fluctuate by ±5%.

(1-2) Inlet coolant temperature.

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

(2-2) For detailed working coolant use and maintenance instructions, please refer to **Chapter 2.1** "**Requirements of Coolant**".

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

# 2 Cooling System Requirements

## 2.1 Requirements of Coolant

When purchasing coolant, it is essential to focus on the relevant parameters in Table 2-1. If the requirements are not met, it is necessary to consider refilling and replacing the coolant as appropriate.

(1) The primary focus during regular inspection of coolant should be the pH value. It is not recommended to use the coolant when the pH value is below 7 (a pH indicator can be added to the coolant. When the pH is below 6.8, the coolant will change color for easy observation); the inspection method is shown in the table below.

(2) Secondary focuses during regular inspection of coolant include freezing point, ethylene glycol ratio, total hardness, etc. In the later stage, attention should be paid to whether the content of elements such as Al, Fe, and Cu increases or not, as an increase indicates that contact corrosion has already occurred; the inspection method is shown in the table below.

It is recommended to regularly add corrosion inhibitors according to the supplier's requirements to maintain the coolant.

Table 2-1 Recommended Standard Parameters for Coolant

| Items | Index | | Recommended reference standards for inspection |
|---|---|---|---|
| Color | **Significant color** | | Visual inspection |
| Exterior | **No odor, sediment, or suspended solids** | | Visual inspection |
| Freezing point | **< Local minimum freezing temperature** | | |
| Boiling point | **108°C (low temperature type)** | | |
| pH value | **7-9** | | |
| Reserve alkalinity | **≥4ml (organic formula)<br>≥9ml (including inorganic formula)** | | |
| Total hardness | **<120 mg/l** | | |
| Main element content | B | **<20mg/kg** | |
| | Si | **<20mg/kg** | |

| | | | |
|---|---|---|---|
| | P | **<20mg/kg** | |
| | Mo | **<20mg/kg** | |
| | Ca | **<20mg/kg** | |
| | $Al^{3+}$ | **<50mg/L** | |
| | $Fe^{2+}$ | **<50mg/L** | |
| | $Cu^{2+}$ | **<50mg/L** | |

Table 2-1 provides the medium requirements for working environments with temperatures below 0°C like glycol. Table 2-2 illustrates the relationship between the concentration of glycol and its freezing point.

Table 2-2 Glycol Refrigerant Concentration vs. Freezing Points

| **Glycol concentration** | | **Freezing point, °C** |
|---|---|---|
| **Mass concentration, %** | **Volume concentration, %** | |
| 0 | 0 | 0 |
| 5 | 4.4 | -1.4 |
| 10 | 8.9 | -3.2 |
| 15 | 13.6 | -5.4 |
| 20 | 18.1 | -7.8 |
| 25 | 22.9 | -10.7 |
| 30 | 27.7 | -14.1 |
| 35 | 32.6 | -17.9 |
| 40 | 37.5 | -22.3 |
| 45 | 42.5 | -27.5 |
| 50 | 47.6 | -33.8 |
| 55 | 52.7 | -41.1 |
| 60 | 57.8 | -48.3 |

If the working environment temperature is consistently above 0°C, deionized water or purified water can be used as the secondary side internal circulation medium with corresponding requirements listed in Table 2-3.

Table 2-3

Recommended standards for deionized water

| **Index** | **Deionized water** | **Reference standards** | **Remarks** |
|---|---|---|---|
| pH value | **8.5-9.5** | **Intel 632983** | |
| Sulfide | **<1 ppm** | **TC9.9/Intel 632983** | |

| | | | |
|---|---|---|---|
| Sulfate | **<10 ppm** | **TC9.9/Intel 632983** | |
| Chloride | **<5 ppm** | **TC9.9/Intel 632983** | |
| Bacterial community | **<100 CFUs/ml** | **TC9.9/Intel 632983** | |
| Total hardness (as $CaCO_3$) | **<20 ppm** | **TC9.9/Intel 632983** | |
| Conductivity | **<20us/cm (reference value, not mandatory)** | **TC9.9** | High conductivity is not necessarily unacceptable, such as 1000us/cm, as corrosion inhibitors and fungicides will both lead to an increase in water conductivity. It is necessary to understand the reasons behind the sharp increase in conductivity trend during circuit operation. |
| Residues after evaporation | **50 ppm** | **TC9.9/Intel 632983** | |
| Turbidity | **<20 NTU** | **TC9.9/Intel 632983** | |
| Iron content | **0.1 ppm** | **Industry standards** | |
| Copper content | **10 ppm** | **Industry standards** | |
| Carbon steel corrosion rate | **3mpy (0.075mm/a)** | **GB/T 50050-2017** | |
| Corrosion rate of copper or stainless steel | **0.2mpy (0.005mm/a)** | **GB/T 50050-2017** | |

**NOTE:**

- The coolant must be configured strictly in accordance with the lowest possible temperature in the environment. If the coolant is not configured according to the instructions and the ambient temperature is lower than the freezing point of the coolant, causing the heat exchanger to freeze and crack, our company will not bear

any responsibility.

## 2.2 Maintenance Requirements of Cooling System

As the core unit of the container water cooling system, it is recommended to regularly track and record the coolant, at least once a year (pH value should be tested every six months).

To ensure long-term reliable operation, when using deionized water or purified water as the internal circulation medium, check every 1-2 weeks and replace the internal coolant every 1-2 months.

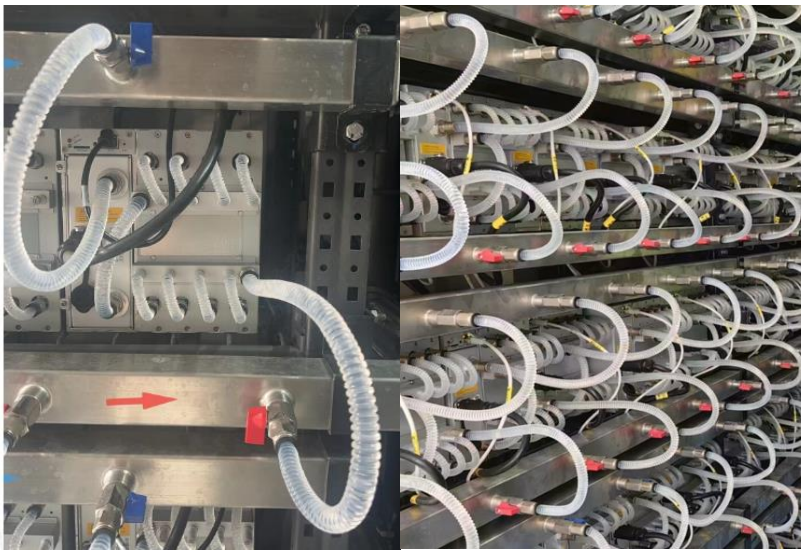
When using deionized water as the internal circulation medium, please strictly comply with the usage environment above 0°C. Otherwise, if the temperature is below freezing point, unexpected power outage will cause the internal pipes of the system to freeze and cause the pipes to burst.

When using deionized water/pure water, the pH value, conductivity, and related index parameters of the coolant must be regularly tested and recorded. When the requirements in Table 2-3 are exceeded, or there are abnormal changes, new deionized water/pure water that meets the requirements must be replaced in time.

# 3 Installation and Rack Management

## 3.1 Installation Location

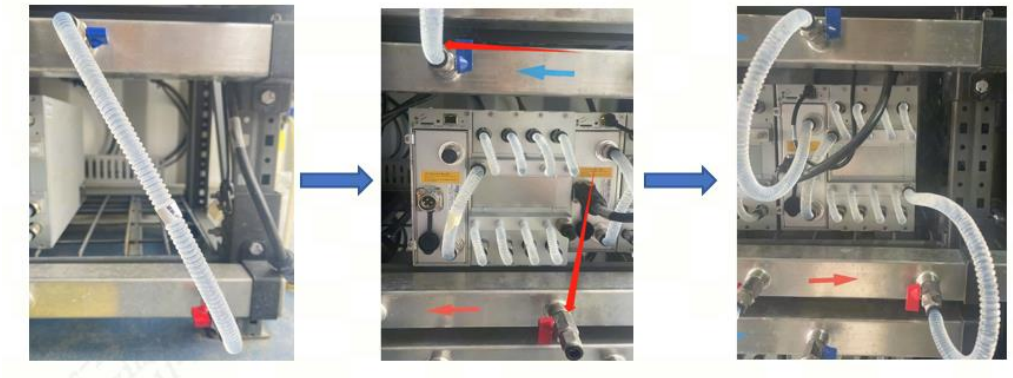
The S21 Hyd. should be installed on the racks in our water-cooled container, with the water and electrical interfaces facing the aisle of the water-cooled container.



## 3.2 Loading Hydro-cooling miner

First connect the water, then the power supply, and proceed from the top to the bottom in sequence.

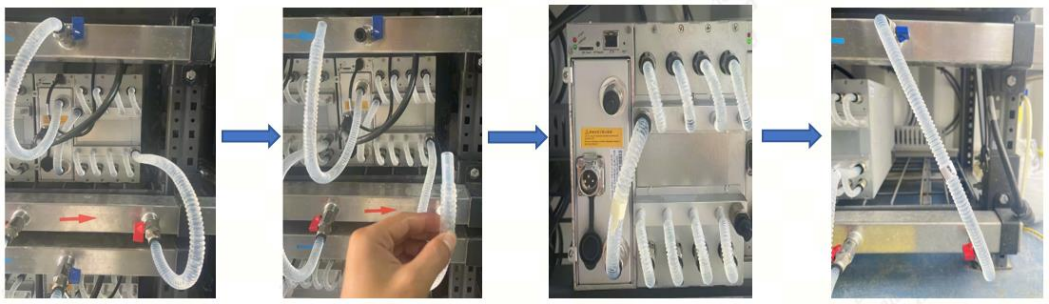
1. Water flows: First, close all the inlet and outlet water valves, then insert the water pipes into the machine's quick connectors, with the upper connector for inlet and the lower one for outlet. Make sure the water pipes are fully inserted to ensure a tight seal. Then, open all the water pipe valves and check for any leaks.
2. Power: The miner’s power plug is an aviation plug, and the button can be fully reset to complete insertion.
3. Network: Insert the corresponding network cable below the miner into the miner, and each network cable has a location code.



## 3.3 Unloading Hydro-cooling miner

First cut off the power, then cut off the water, from the lower level to the higher level in sequence.

1. Power: Turn off the corresponding air switch of the miner.
2. Water flows:
   Step 1: close all the inlet and outlet valves of the miner to ensure they are fully closed. Then, slowly pull out the inlet and outlet water pipes, and lower the water pipe mouth to allow the liquid inside the miner to flow into the bucket until no water droplets flow out.
   Step 2: check the power plug and network cable head, confirm that there is no liquid on the head, and then unplug and remove the miner.
   Step 3: unplug the water pipe and block the quick connect plug of the miner with a water stop plug. The residual miner coolant should be left in the miner (if repair is required, all the miner coolant should be drained and the residual coolant inside the miner should be blown dry with an air pump). After removal from the rack, the water inlet and outlet of the original miner position should be kept connected.
3. Network: Pull out the network cable from the miner and bend it down to avoid scratching the network cable when removing the miner.
4. After all the above operations are completed, the miner can be taken out and removed from the rack.



## 3.4 Precautions

1. **Before water filling**: Check the water pipes to ensure they are securely connected to prevent leaks during water filling.
2. **Power connections**: Ensure that the power connections are securely plugged in to avoid sparks when powering on. Before plugging in or unplugging the AC power input line, please ensure that the server is powered off.
3. **Powering on**: First, fill the system with water, wait for 20 seconds, and then confirm that the flow rate and water temperature meet the standards before powering on.
4. **Powering off**: First, disconnect the power, wait for 20 seconds, and then confirm that the server is powered off before disconnecting the water.

5. **In case of water spillage**: If there is water splashing or spraying from the water-cooled server, do not power on the device directly. Please contact the after-sales service center.
6. **Operating below 0°C**: If the water-cooled server operates in an environment below 0°C, antifreeze must be used inside; otherwise, there is a risk of freezing and cracking the server.
7. **In case of thunderstorms**: Unplug the device during thunderstorms or when not in use for an extended period. This will protect the server from damage caused by power fluctuations. Do not overload the power outlet and power cord. Overloading may result in fire or electric shock.
8. **In case of strange odors, sounds, or smoke:** If the server emits strange odors, sounds, or smoke, immediately disconnect the power and contact the service center. Under no circumstances should you hit or drop the server. Ensure that all connection cables are securely connected and properly aligned.
9. The miner can only be energized after all of the above operations have been completed.
10. When performing batch shelving operations: it is necessary to load the miner from the upper layer to the lower layer in order to avoid the impact of residual water in the water pipe on the miners in the lower layer.
11. For transfer in batches, all the cooling liquid of the miner should be discharged, dried with an air pump, and packaged in original carton boxes for transportation and transfer.

# 4 Setting up the Server

**NOTE:**

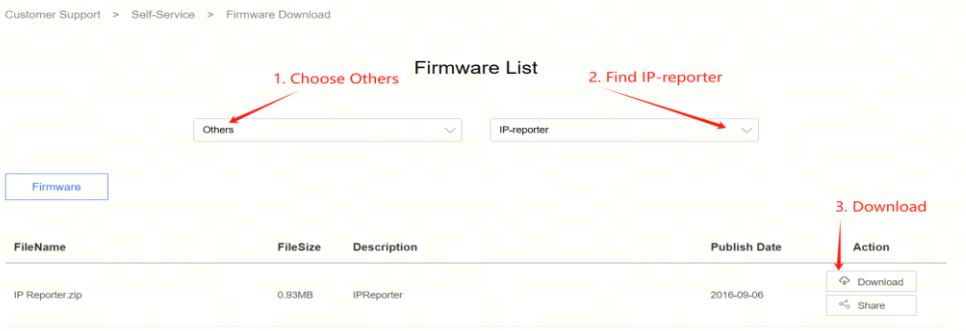
➢ The file IPReporter.zip is supported by Microsoft Windows only.

## 4.1 Setting up the Server

To set up the server:

4. 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.

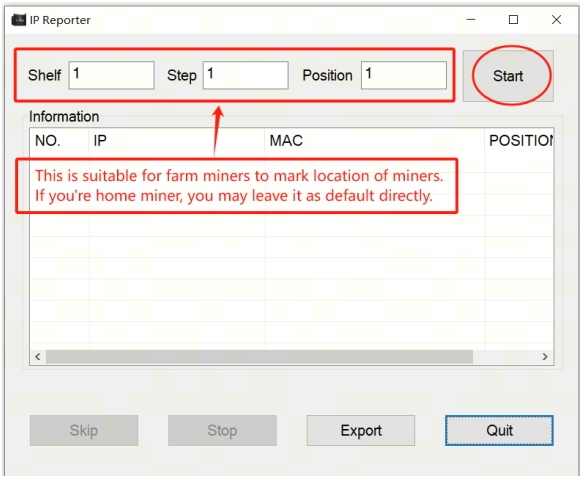



5. Download the following file: IPReporter.zip.
6. Extract the file.

**NOTE:**

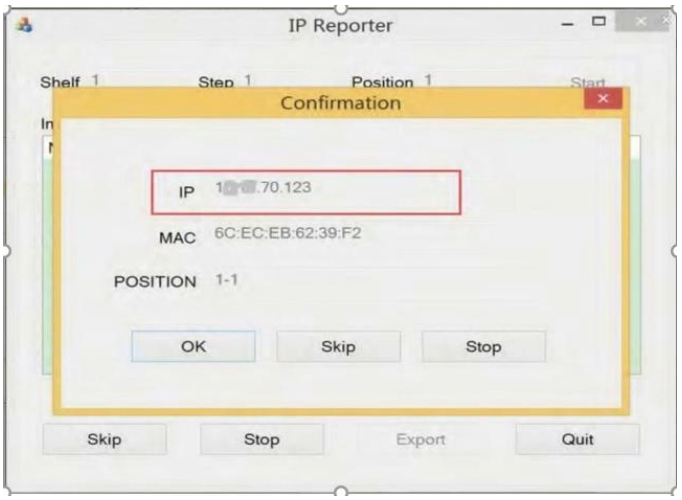
➢ The default DHCP network protocol distributes IP addresses automatically

7. Right-click **IPReporter.exe** and run it as Administrator.
8. 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.
9. Click **Start**.

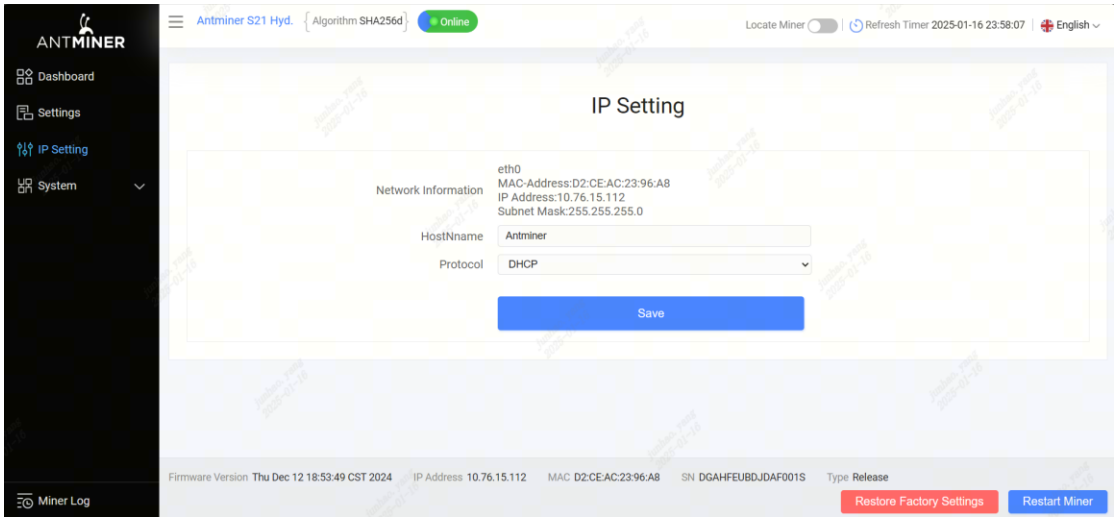


10. On the control panel, click the IP Report button (its location is shown in Figure 1-2). Hold the button down until it beeps (about 5 seconds).

    The IP address will be displayed in a window on your computer screen.




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

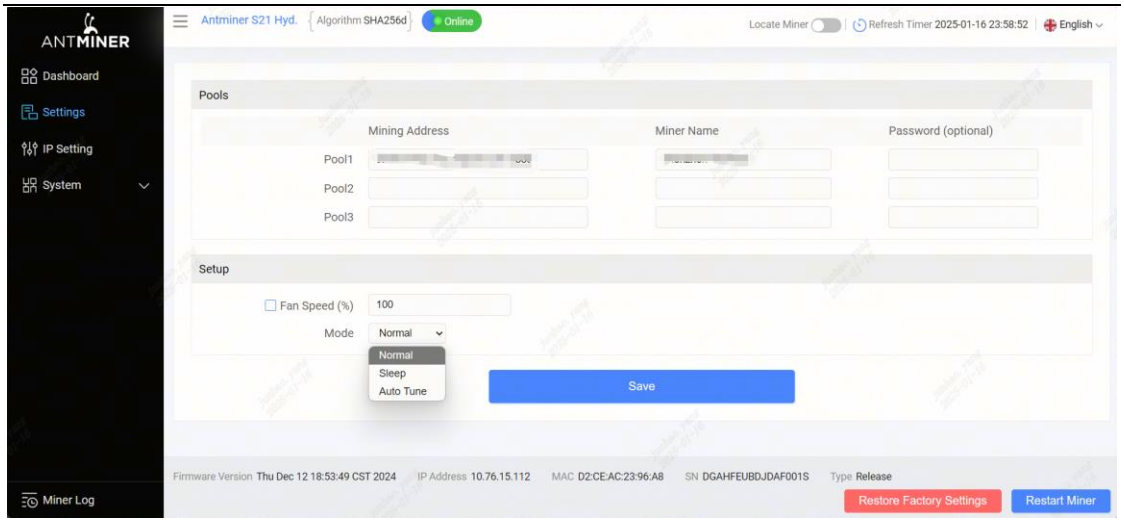



## 4.2 Configuring the Server

### Setting up the Pool

To configure the server:

1. Click **Settings** as below.




2. Set the options according to the following table:

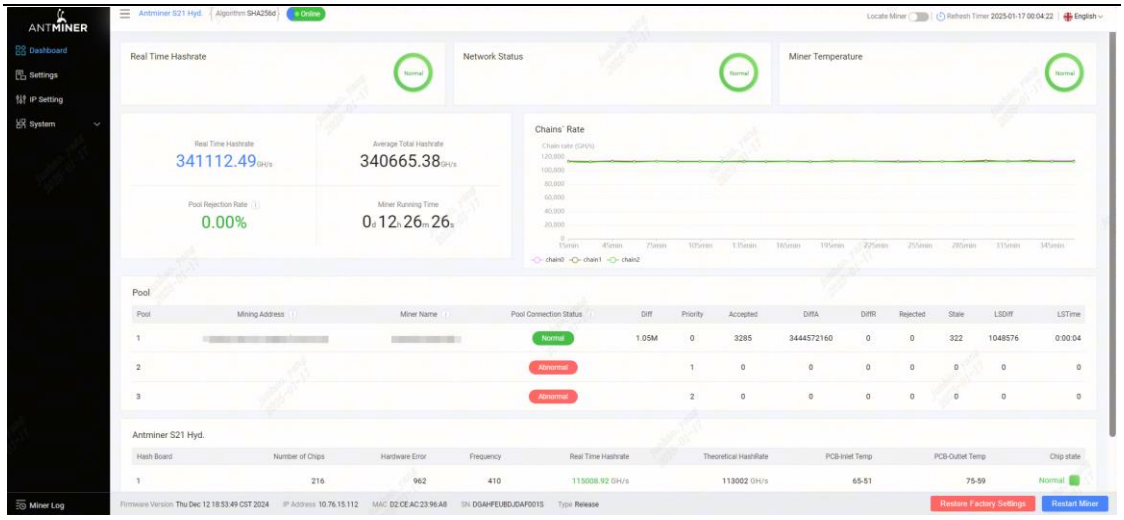
| Option | Description |
|---|---|
| Mining address | Enter the address of your desired pool.<br>The S21 Hyd. servers can be set up with three mining pools, with decreasing priority from the first pool (pool 1) to the third pool (pool 3). The pools with low priority will only be used if all higher priority 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.

## 4.3 Monitor your Server

To check the operating status of your server (taking S21 Hyd. 335T 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 (℃). |
| Outlet Temp | Temperature of the outlet (℃). |
| Chip state | One of the following statuses will appear:<br>● **The Green Icon** - indicates normal<br>● **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 |

**NOTE:**

➢ The frequency of the S21 Hyd. server is fixed at 410 MHz. The firmware will stop running when the Temp (PCB) reaches 75℃, the water temperature is either greater than 50℃ or lower than 20℃ and the maximum asic temperature is greater than 95℃.

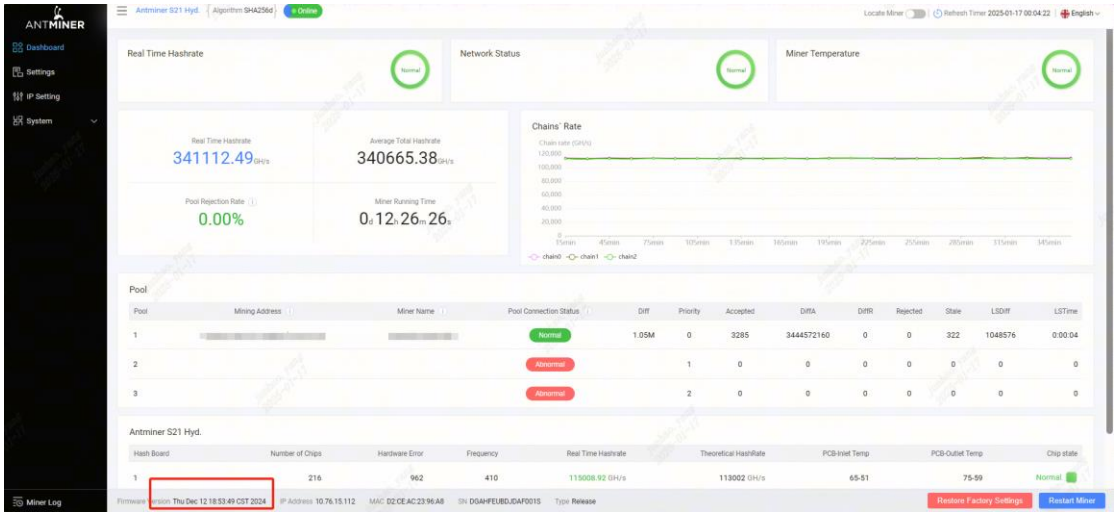
An error message, “Fatal Error: Temperature is too high!” will be shown at the bottom of the Kernel log page.

# 4.4 Administering your Server

## 4.4.1 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 **202412121853**.

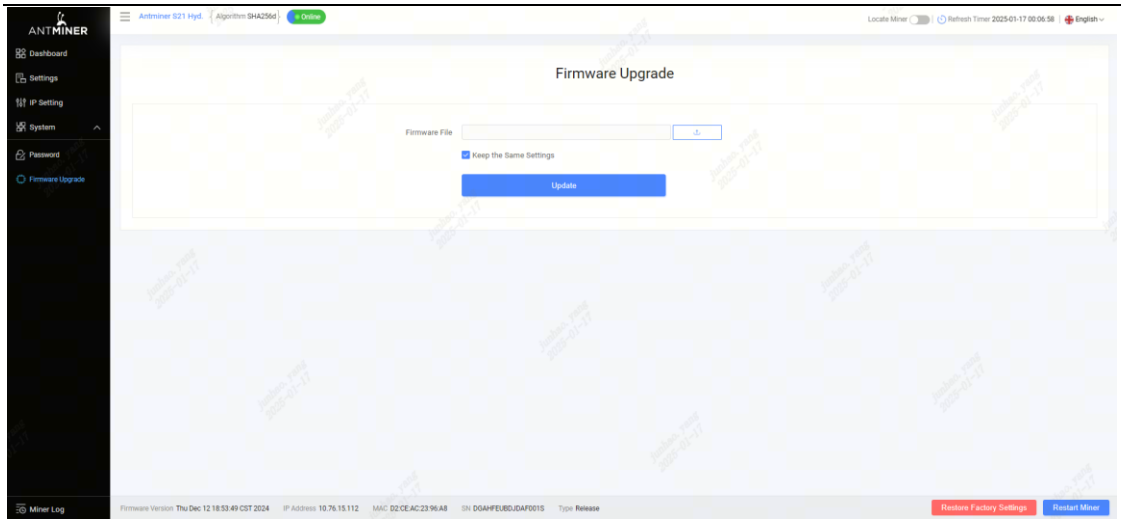



## 4.4.2 Upgrading your System

**Caution**: Make sure that the S21 Hyd. 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.

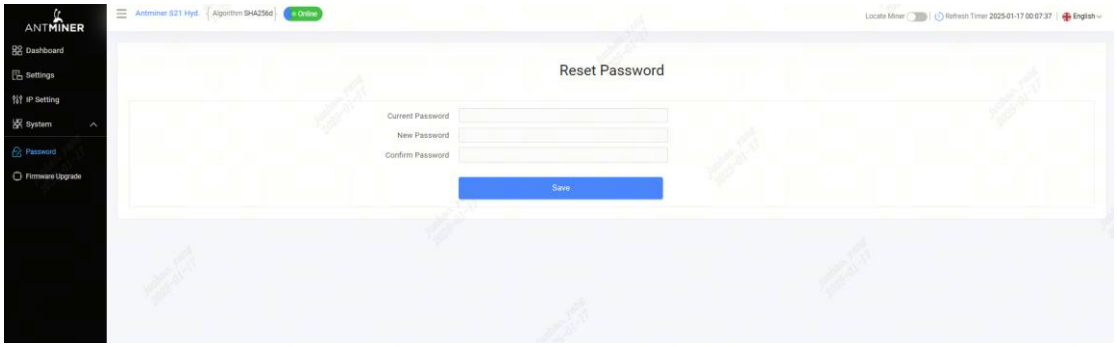



2. For Keep Settings:
   (1) Select "**keep settings**" to keep your current settings (default).
   (2) Unselect "**keep settings**" to reset the server to default settings.
3. Click the button and navigate to the upgrade file. Select the upgrade file, then click Update.
4. When the upgrade is completed, restart the server. It will return to the dashboard page automatically.

### 4.4.3 Modifying your Password

To change your login password:

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




### 4.4.4 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.

### 4.4.5 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 design | Check if chain4 connection is normal, update the firmware to the latest version, replace the hashboard, or return to factory for repair |
| **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 lost | Check if the network connection is normal |

# 5 Environmental Requirements

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

## 5.1 Basic Environmental Requirements

### 5.1.1 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.

### 5.1.2 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.

## 5.2 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.

### 5.2.1 Mechanical Active Substances

Table 5-1 Requirements of mechanical active substances

| Mechanical Active Substance | Requirement |
|---|---|
| Sand, **mg/m³** | **≤30** |

| | |
|---|---|
| Dust (suspended), **mg/m³** | **≤0.2** |
| Dust (deposited) , **mg/ m²h** | **≤1.5** |

### 5.2.2 Corrosive Gas

Table 5-2 Requirements of corrosive gas

| Corrosive Gas | Unit | Concentration |
|---|---|---|
| H2S | **ppb** | **< 3** |
| SO2 | **ppb** | **< 10** |
| Cl2 | **ppb** | **< 1** |
| NO2 | **ppb** | **< 50** |
| HF | **ppb** | **< 1** |
| NH3 | **ppb** | **< 500** |
| O3 | **ppb** | **< 2** |
| Note: **ppb** (part per billion) refers to the unit of concentration, 1**ppb** stands for the volume ratio of part per billion. | | |

# 6 Regulations

## 6.1 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.

## 6.2 Industry Canada

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

## 6.3 European Community

**Warning:** Operation of this equipment in a residential environment could causeradio 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 your purchased the product.

## 6.4 Taiwan ROHS

設備名稱：服務器　　型號：S21 Hyd.

| 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。

# 6.5 FCC Supplier's Declaration of Conformity

**Supplier's Declaration of Conformity**

**Trade Name:** BITMAIN ANTMINER

**Model Number: S21 Hyd.**

**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.

# 6.6 EU Declaration of Conformity

BITMAIN

CE **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:** BITMAIN ANTMINER

**Product: Server**

**Model No.: S21 Hyd.**

**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:** Xiaoxian Luo **Date:** 2025/2

**Position/Title:** President of Product Division II

# 7 Warranty

1. A 365-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 365-day warranty; used machines are not included