

iBeLink DM22G Specification and Operation Guide

Version Update List

Time	Description	Version
2017-10-01	Initial version for DM22G	1.0
2017-10-10	FAQ updated	1.1

Component list

Index	Component	Count	Description
1	Main box	1	Size 49x35x18 cm
2	Power cord	1	For Power connection
3	Specification	1	This document

0 Disclaimer

1. The manufacturer is not liable for any loss or damage of the miner caused by irresistible force of nature.
2. The manufacturer is not liable for any loss or damage of hardware and/or software caused by unauthorized alteration of the miner.
3. The manufacturer is not liable for any loss or damage of the miner caused by over-clocking or improper heat dissipation.
4. The manufacturer is not responsible for any miner sold through unauthorized distribution channels.
5. The manufacturer is not responsible for any loss of the mining capability caused by ASIC unfriendly mining pool.
6. The manufacturer is not responsible for any loss due to the price fluctuation of crypto currency.

1 Feature

- Hash rate: 22GHash \pm 5%, power consumption: <870W/GHash
- Support all POW X11 algorithm encryption currency mining
- Support the Stratum protocol pool, p2pool, and solo mining
- Provide web management platform, ease of setup and large-scale deployment
- Web platform providing hash rate statistics, mining pool status monitor
- Support to restart mining software or to restart the machine through the web platform
- Support power-on self-test function and identifying each fault chip location
- Support hashing blade LED status indication, convenient for large scale mining operation
- Support main pool and multiple backup pool settings, and automatic switching of faulty pool
- Support email warning for hashing blade loss, and restart for self-recovery
- Support self-recovery from network and driver fault with independent system watchdog
- Modular design easy for DIY(Do-It-Yourself) problem identifying and fixing

2 Precautions

Please take safety precautions when working in and around the mining machine. Safety glasses are recommended when doing visual inspections while the mining machine is powered on. Some components may burst due to intense heat or a spike in current. Also take note that some parts of the mining machine will be hot to the touch.

3 Before Starting

Before powering on your mining machine, please do the following checks:

1. Open up the mining machine and do a visual inspection of the components inside. Check for damages that may have occurred during shipping such as loose or missing electrical components, loose wire connections, or broken fan blades.
2. Lightly shake the mining machine to check for hidden items that may have come loose during shipping. These items need to be removed as they can damage the mining machine.
3. Connect the mining machine to your local network with an Ethernet cable.
4. Check that the power supply is turned off before plugging in the power cable.

4 Operation Guide

4.1 Logging in to the Mining Machine

After being connected to the network and powered up around 1 minute, the four LED lights on the front panel will turn from red to blue one by one, indicating mining has started normally. On any computer in the same local network (exactly the same route) with the mining machine, enter the hostname (default name: iBeLink) or its IP address in the browser, such as: <http://iBeLink/>. You will access the login page as shown in Fig. 1. Input the default password: iBeLink and click the [Login] button to log into the mining system.

User Name	iBeLink
Password
<input type="button" value="Password"/>	<input type="button" value="Login"/>

Fig. 1 Login page

You can change or retrieve the password of the mining system by clicking the [Password] button at the login page to link to the password manager page as shown in Fig. 2.

User Name	iBeLink
Old Password	
New Password	
Confirm Password	
<input type="button" value="ReLogin"/>	<input type="button" value="Change Password"/>
MAC Address	
	<input type="button" value="Retrieve Password"/>

Fig. 2 Password manager page

Fill in the old password and double check the new password, and then click the [Change Password] to update your new password. If you forgot your password, you can fill in the MAC address of the mining machine and click the [Retrieve Password] button to reset the password to default: iBeLink. Furthermore, if you have configured the warning email server and target email address (See the following description), clear the MAC address and click the [Retrieve Password] button and the forgotten password will be sent to your warning email account. You can find the MAC address on your router's DHCP page as in Fig. 3, and the MAC address is also displayed on the home page as in Fig. 4.



Fig. 3 MAC on the H3C router's DHCP page

4.2 State of the Mining Machine

After logging into the mining system, you can see the mining machine's home page, the web management platform, as shown in Fig. 4.

Address	Devs	Temp	Fans	Util	MH/s 5s	MH/s avg	Rec	Acc	Rej	H/W	Gets	Disc	Stales	Get Fails	Rem Fails
CGMiner-Dash	4/4	1:31.8°C—8:29.6°C 2:32.9°C—7:30°C 3:33.6°C—6:31.8°C 4:34.4°C—5:32.4°C	5400 rpm (3,6)	3.6 (3,6)	21439.5 91.42 %	9303.89 39.67 %	163 100.00 %	159 0.00 %	0 2.45 %	4	39	66 41.51 %	0 0.00 %	1 0.63 %	0 0.00 %

Dev	En	Run Time	PLL	Baud	Chips Map	Active Map	MH/s 5s	MH/s avg	Send	Rec	Acc	Rej	H/W	Share Diff	Util	Pool
DM0	Stop	0days 0:44:10	380	1500000	54 3fffffff	2 1000000040000	4665.56	3483.12	6239	49	47 100.00 %	0 0.00 %	2 4.08 %	50	1.06 (92.54)	0
DM1	Stop	0days 0:44:10	380	1500000	54 3fffffff	2 41000	5546.83	2526.9	7119	39	38 100.00 %	0 0.00 %	1 2.56 %	50	0.86 (76.48)	0
DM2	Stop	0days 0:44:10	380	1500000	54 3fffffff	4 440800000020	5555.15	1306.56	8303	33	32 100.00 %	0 0.00 %	1 3.03 %	50	0.72 (61.09)	0
DM3	Stop	0days 0:44:10	380	1500000	54 3fffffff	6 40031800001	5671.96	1987.31	9960	42	42 100.00 %	0 0.00 %	0 0.00 %	50	0.95 (75.53)	0

Fig. 4 iBeLink DM22G miner's homepage of management platform

The home page shows the basic information of the mining machine:

1. The current time, time zone, hostname, IP address, MAC address.
2. Mining machine chip count, blade count, temperature, average nonce count per minute, 5S and average hash rate statistics, returned nonce count from chip, accept/reject/error nonce count and rate from the starting up time.
3. The running time of the machine, PLL and serial baud rate parameter.
4. The chips count, the test result bitmap, returned nonce count from chip and bitmap during last 30 minutes, accept/reject/error nonce count and rate, the current task difficulty, average nonce count per minute, and current mining pool index, all for each blade.
5. Statistics of the task information from the mining pool.

4.3 Mining Configuration

1. Modify hostname: as shown in Fig. 4, input the new hostname in the text box next to NewHostName. Click [**change**] button to modify the hostname, and reboot machine to take effect.
2. Click [**reboot**] button to restart the whole machine system.
3. Click [**restart**] button to restart mining software.
4. Configuration
As shown in Fig. 4, click the [**Config**] button to show the configuration section shown in Fig.5 (three parts).

In part 1:

Click the [**√**] button to show the detail information of the selected pool (First line of part 2).

Click the [**Top**] button to set the highest priority for the mining pool.

Click the [**Stop**] button to disconnect the mining pool.

Click the [**Delete**] button to delete the mining pool.

In part 2:

Fill in the mining pool address in the Pool URL input box, mining worker name in the Pool User input box, mining worker's password in the Pool Password input box, and then click the [**Add Pool**] button to add new mining pool.

The screenshot displays the Mining Machine configuration interface. At the top, there is a table with columns: Pool, Priority, URL, Gets, Diff, Accepts, Rejects, Discards, Stales, Get Fails, and Rem fails. Below the table are three rows of pool information, each with 'Stop' and 'Delete' buttons. A red '1' is next to the second row.

Below the table is a configuration section with various input fields and buttons:

- Pool URL: stratum+tcp://wk1.cybtc.info:5588
- Pool User: weiwei22844.37
- Pool Password: x
- Action: Add Pool
- Email Server: [empty]
- Email User: iBeLink
- Email Password: [empty]
- Action: Set Email Server
- Email Target: [empty]
- Low Hashrate Threshold(MH): [empty]
- High Reject Threshold(%): [empty]
- Low Hashrate & High Reject Warning Duration(m): [empty]
- Start Time(m): [empty]
- Time Zone: 8
- Temperature Check Interval(s): 10
- Warning Temperature(°C): 52
- Safe Temperature(°C): 38
- Action: Set Warning Param
- Static IP: 192.168.1.106
- Netmask: 255.255.255.0
- Gateway: 192.168.1.1
- Static IP Enable: Enable
- Action: Set IP Config
- PLL(25-600): 380
- Action: Set PLL
- Save All Configuration
- Action: Save Configuration

At the bottom, there are several buttons: Restart, Reboot, Update, Rollback, and Restore. A red '2' is next to the 'Set Warning Param' button, and a red '3' is next to the 'Restore' button.

Fig. 5 Mining Machine configuration

5. Email warning configuration

Mining machine provides Email warning of High Temperature. Setup as following:

Fill in the Email Server such as "smtp.gmail.com", Email User such as "example@gmail.com" and Email Password such as "123456", and then click the **[Set Email Server]** button to set the email account used to send warning emails. It should be noted that you will need to set up an **application-specific password** rather than using your account-password of Gmail - see:

<https://support.google.com/mail/?p=InvalidSecondFactor>

<https://security.google.com/settings/security/apppasswords>

For Chinese users using 163 or QQ email, the setting is as shown in Fig.6.



Fig. 6 the authorization code of 163

The system currently only supports **Gmail, 163 and QQ** email for now. Other mail account may not work.

6. Temperature monitor configuration

Fill in the Email Target, the Temperature Check Interval (sec) and the Warning Temperature (°C), and then click **[Set Warning Param]** button to set Email warning parameters. The Warning Temperature should not exceed 52°C.

7. Static IP configuration

Mining machine provides DHCP as default. If you want to configure a static IP, it can be configured as following:

Fill in the Static IP, Netmask, Gateway and select the Static IP Enable checkbox, then click **[Set IP Config]** button to enable the static IP. If you want to switch to default DHCP mode, just clear the static IP enable checkbox and click **[Set IP Config]** button.

Note that some routers may need to be configured accordingly in order to use your static IP for mining. So you need to know your router well, and have a deep understanding of your network before you decide to use the static IP option.

IP mode configuration will take effect after rebooting the machine system.

8. Save Configuration

After all parameters are configured, click **[Save Configuration]** button to save all the configurations, otherwise some configuration may be lost when you reboot the system.

9. ASIC chip parameter configuration

The default value of PLL is 380 MHz. You can set the value of PLL for the mining chips. Input a valid value in PLL input box, then click [Set PLL] button to set. **We do not recommend changing the default PLL unless advised from professional.** The new value of PLL will take effect after reboot the machine system.

In part 3:

10. Restart/Reboot/Update/Rollback/Restore

As shown in Fig. 5, the current mining software version is shown to the user, such as cgminer-IB3.6.5.

Check the [Restart] select box, click the [Restart] button to restart mining software.

Check the [Reboot] select box, click the [Reboot] button to reboot the whole system.

Check the [Update] select box, click the [Update] button to update the software version.

Check the [Rollback] select box, click the [Rollback] button to rollback the last version of mining software.

Check the [Restore] select box, click the [Restore] button to restore mining software default version and load factory default configuration.

5 FAQ

- **Can iBeLink DM22G miner be overclocked?**

No, ABSOLUTELY CAN NOT. You may permanently damage the ASIC chips inside your miner with high probability if you perform any kind of overclock.

- **How to maintain iBeLink DM22G miner running at high efficiency?**

Do your best to keep this miner in a “COOL” environment. If you can maintain a miner detected temperature under 35C, you should be able to achieve a good mining efficiency.

- **What does the “DIY problem identifying and fixing” mean?**

iBeLink DM22G is designed with a modular philosophy. It is designed for the purpose of easy maintenance and problem fixing by you instead of sending all faulty miners back to the manufacturer. For most of the problems that arise, you should be able to debug and resolve on site by yourself. We will prepared a series of short “how to” videos to help you perform various on-site DIY projects. We believe the iBeLink DM22G will provide the best product lifecycle costs.

- **Why can't my browser configure the parameters of the miner?**

It is recommended to use the Google Chrome browser to configure the parameters of the miner.

- **What does the chips bitmap mean on the home page?**

When the mining software starts, all the ASIC chips on each blade will be detected. If the chip of the corresponding position is normal, then the corresponding bitmap value is 1, otherwise 0. If all 16 chips on the blade are normal, then the bitmap value is 0xFF corresponding to the binary value of 1111111111111111. If the first chip has an exception, the bitmap value is 0xFE corresponding to the binary value of 1111111111111110.

The Active Map is similar to the Chips Map. When the chip calculates the correct result, the corresponding position value is 1, otherwise 0. For example, 0x35 in binary is 110101. That means chips 1, 3, 5 and 6 have calculated the correct result. Value is reset to 0 every 30mins.

- **Why does my home page shows ASIC chip count less than FF sometimes?**

Due to electrical instability or software driver abnormality, mining software may fail to accurately detect all chips.

- **How to disable the Email warning?**
Empty Target Email text box, then click the [**Set Warning Param**] button to disable the Email warning function.
- **Why does the mining software automatically restart?**
Mining software supports self recovery from network or driver fault, with watchdog monitoring for the whole system. When an exception is detected, the mining software will automatically restart to try to recover from the fault. Therefore, occasional automatic restart of the mining software is normal.
- **How to recover the mining software after crash?**
After the miner has crashed, click the [**Config**] button to arrive at the page shown in Fig. 7. You can choose [**Update**] to get the latest mining software version, [**Rollback**] to roll back to the previous version, or [**Restore**] to restore to factory default. Note that after restoring to factory default, all user configurations and settings will be lost. You will need to reconfigure and save it.

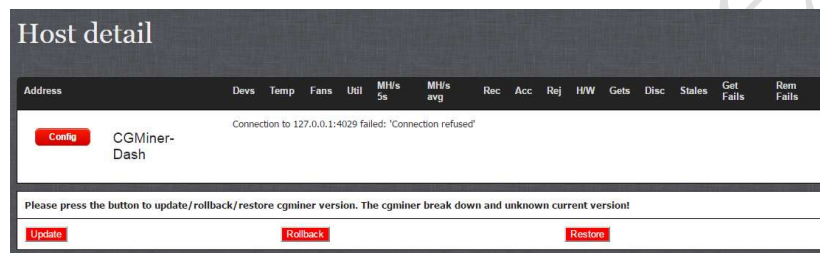


Fig. 7 Recover the miner after crash

- **Why the hash rate statistical results are not the same on different mining pools?**
Mining software does hash rate statistics by returned nonce. Different mining pools provide different difficulty so returned nonce count is not the same, leading to different hash rate statistical results.
- **Why my miner is not in the main mining pool but in reserve pool sometimes?**
In multiple mining pools configuration, the mining software uses the highest priority among the mining pools. If the main mining pool connection fails, it will automatically switch to an available reserve backup mining pool to mine.
- **What does ACC, REJ, H/W, etc mean?**
 DEVS (devices) = number of chips detected in the miner
 TEMP = temperature reading from the sensors on the hashing board
 FANS = speed of the fans
 UTIL (work utility) = number of shares the miner is contributing per minute
 MH/S 5S = a 5 second exponentially decaying average hash rate
 MH/S AVG = average hash rate since miner booted
 REC (received) = total queued work items
 ACC (accepted) = number of accepted shares
 REJ (rejected) = number of rejected shares
 H/W (hardware) = number of hardware errors
 GETS = work items ready to use
 DISC (discards) = discarded work items (work from block no longer valid to work on)
 STALES = stale shares discarded (detected and not submitted so don't count as rejects)
 GET FAILS = getwork fail occasions (server slow to provide work)
 REM FAIL = remote fail occasions (server slow to accept work)

- **Popular X11 algorithm mine pool**

<http://dash.cybtc.info/>

<https://www.nicehash.com>

<https://www2.coinmine.pl>

<https://www.multipool.us>

<https://www.coinotron.com>

<http://www.p2poolmining.us>

6 iBeLink DM22G Technical Support Info

Dash Forum: <https://www.dash.org/forum/>

Support account: iBeLink_1

iBeLink Spec