

# WHATSMINER

# **Product Manual**



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# CATALOG



M3	0 SERIE	S
01	M30S++	
02	M30S+	
03	M30S	
04	M31S+	
05	M31S	
06	M33S++	
	M33S+	
	M36S++	
09	M36S+	

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# CATALOG



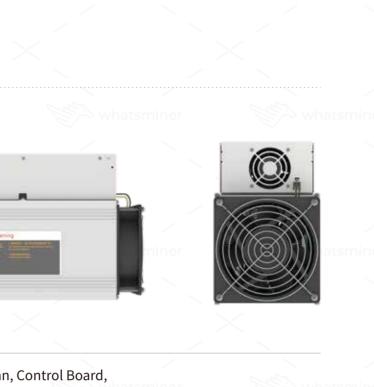
M50 SERIES 10 M50S++ 11 M50S+ 12 M50S 13 M50 14 M53S++ 15 M5**3S**+ 16 M53S 17 M53 18 M56S++ 20 M56S 21 M56

19 M56S+

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SPECIFICATIC	N	X					<ol> <li>4. It is forbidder power is on</li> <li>5. Please use th</li> </ol>
Hashrate	100~112T $\pm$ 5%	Size	430mm*155mm*226mm				6. The size of the documents for
Power Ratio	31J/T ± 5% @25° C	Weight	11.7KG				
Power On Wall	3100~3472W ± 10%	Internet Connections	Ethernet	Wa	rranty Period		One year after le
Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A	Aft	er-sales Contact		1. Email: Suppo
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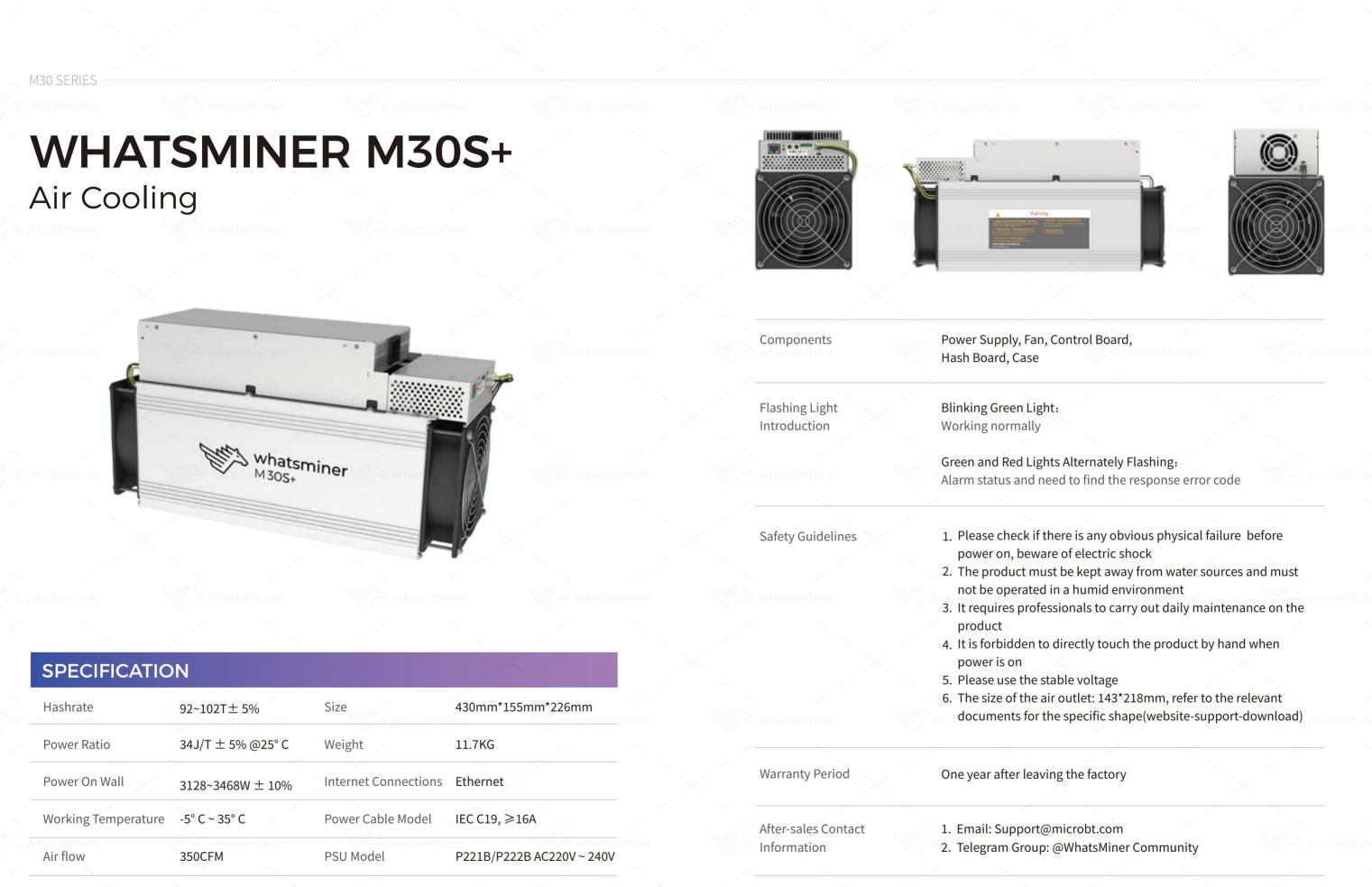
- f there is any obvious physical failure before
- vare of electric shock
- nust be kept away from water sources and must
- ed in a humid environment
- fessionals to carry out daily maintenance on the

to directly touch the product by hand when

stable voltage air outlet: 143\*218mm, refer to the relevant r the specific shape(website-support-download)

aving the factory

t@microbt.com p: @WhatsMiner Community



www.whatsminer.com

M30 SERIES				X	<u> </u>
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Air Coolir		whatsmi	ner Whatsm		
whatsminer	whatsminer =	·· .	ner whatsm	Components	Power Supply, Fan, Hash Board, Case
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SPECIFICATIC	N	X			<ol> <li>4. It is forbidden to power is on</li> <li>5. Please use the st</li> </ol>
Hashrate	88T ± 5%	Size	430mm*155mm*226mm		6. The size of the a documents for t
Power Ratio	38J/T ± 5% @25° C	Weight	11.7KG		
Power On Wall	3344W ± 10%	Internet Connections	Ethernet	Warranty Period	One year after leav
					×
Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A	After-sales Contact	1. Email: Support@



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**SPECIFICATION** 

Working Temperature -5° C ~ 35° C

 $80T \pm 5\%$ 

 $42J/T \pm 5\% @25^{\circ}C$ 

 $3360W \pm 10\%$ 

350CFM

Hashrate

Power Ratio

Power On Wall

Air flow

# WHATSMINER M31S+ Air Cooling

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	Whatsminer M31S+	

Components	Power Supply, Fan, Hash Board, Case
Flashing Light Introduction	Blinking Green Ligh Working normally
	Green and Red Ligh Alarm status and ne
Safety Guidelines	<ol> <li>Please check if the power on, beware</li> <li>The product must</li> </ol>
	not be operated 3. It requires profes product
	<ul> <li>4. It is forbidden to power is on</li> <li>5. Please use the st</li> </ul>
whatsminer	6. The size of the ai documents for the air and a size of the air
Warranty Period	One year after leavi

After-sales Contact Information

1. Email: Support@microbt.com

Size

Weight

430mm\*155mm\*226mm

P221B/P222B AC220V ~ 240V

11.7KG

IEC C19, ≥16A

Internet Connections Ethernet

Power Cable Model

**PSU Model** 



### , Fan, Control Board,

# n Light:

## d Lights Alternately Flashing. and need to find the response error code

- ck if there is any obvious physical failure before
- beware of electric shock
- ct must be kept away from water sources and must
- rated in a humid environment
- professionals to carry out daily maintenance on the

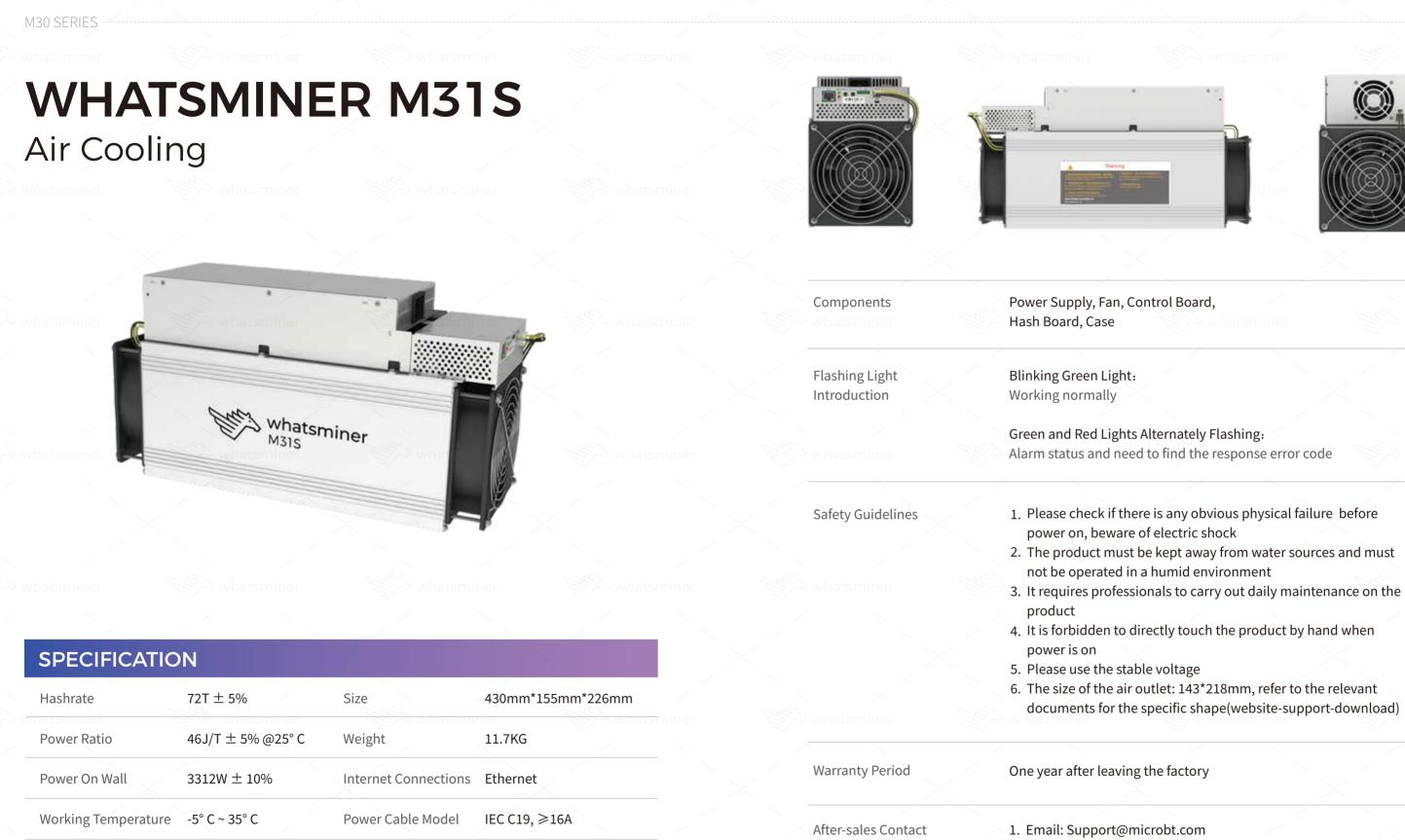
len to directly touch the product by hand when

the stable voltage the air outlet: 143\*218mm, refer to the relevant for the specific shape(website-support-download)

# r leaving the factory

# 2. Telegram Group: @WhatsMiner Community

www.whatsminer.com



Information

**PSU Model** 

P221B/P222B AC220V ~ 240V

Air flow

350CFM

# 2. Telegram Group: @WhatsMiner Community

#### M30 SERIES

# WHATSMINER M33S++ Hydro Cooling









Liquid flow

□ Limited Data:≥10L/min  $\Box$  Flow control accuracy  $\pm$  10%

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10 C @normal mode, 14 C @high performance mode

# **SPECIFICATION**

	Hashrate	218~240T ±10%
_	Power Ratio	31J/T ± 5%
	PSU whatsminer	AC380~480V, 3W+
	Size	86mm*482.6mm*
	Weight	Net weight: 27.5kg
	Coolant demand per machine	About 1L
	Power Cable Model	Custom made , ≥
_	Internet Connections	Ethernet

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

Note: please empty the liquid in the equipment during storage and transportation.

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+ grou	und, input 10kw		24.4	
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٨g	Weight with pack	aging materi	als: 30kg	
≥16A	& whatsr	niner	S what	

- □ Working temperature (inlet): 20 C ~50 C @normal mode
  - 20°C~40°C @high performance mode;
- $\Box$  Inlet temperature control accuracy  $\pm 2$  °C
- □ Storage and transportation temperature: -40~70 °C

### M30 SERIES

All what minor	Whateminer Will whateminer		
whatsminer	Cacoling	Remarks: The above li	quid temperature and flo
Liquid pressure	≤350kpa		dium. If the liquid mediur
	Remarks: when the pressure is more than 350kpa, the		leed to be calculated sepa
	water-cooled plate will be deformed and cause the risk of coolant		erature and flow paramet
		Bij cor antin coze temp	
Liquid medium	First-level deionized water: meet the requirements of the national		
	standard GB/T 6682-2008 first-level deionized water	Table2 Example of tempe	erature and flow parameter
	Notice:		
	1) If the water conductivity is $\geq$ 100us/cm, the medium must be		
	replaced;		🗆 Warking tomporatur
	2) The water conductivity is less than 5us/cm when the system is		□ Working temperature
	running for the first time.	Temperature	15℃~35℃@high perfor
		remperature	Storage and transpor
Liquid PH	Control range: 6~8		Note: please empty the
			transportation.
Liquid medium circulation	□ Anti-rust and anti-corrosion of pipeline;		
system(Machine side)	$\Box$ The particle diameter of the liquid medium is $\leq$ 53 microns,		
System (machine shae)	that is, the circulation system is equipped with a 270 mesh filter;		□ Limited Data:≥11L
	<ul> <li>Before connecting the cabinet to the heat dissipation system,</li> </ul>	Flow	□ Flow control accura
	clean and filter the system pipeline with deionized water to		
	remove dust, welding slag and other impurities;		Remarks: The temperat
	□ The temperature resistance of system components is above 85°C;		at this flow rate is close
	□ The circulatory system is recommended to be equipped with a		mode)
	UV lamp sterilization device to prevent the liquid from breeding		
	bacteria and attenuate the heat dissipation capacity of the system;		
	□ The system is equipped with a 4bar safety relief valve;		
	☐ The system is equipped with a constant pressure expansion tank.		
		Warranty Period	One year after
	Note: when the temperature of the coolant rises after the miner is	waitanty renou	one year alter
	turned on the pressure will rise.		
		After-sales Contact	1. Email: Supp
		Information	2. Telegram G
Humidity	□ Working humidity: 5%RH~85%RH (non-condensing)		
	Storage humidity: 5%RH~95%RH (non-condensing)		
	Long-term storage humidity: 30%RH~69%RH (no condensation)		

flow parameters are based on deionized lium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

neters of 30% ethylene glycol antifreeze

cure (inlet): 15 C ~45 C @normal mode formance mode

re control accuracy  $\pm$  2°C

portation temperature: -40~70 °C

he liquid in the equipment during storage and

11L/min curacy± 10%

erature difference between the inlet and outlet liquids ose to 10 C @normal mode, 14 C @high-performance

ter leaving the factory

upport@microbt.com n Group: @WhatsMiner Community



# WHATSMINER M33S+ Hydro Cooling

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	Hashrate	198~220T ± 10%
	Power Ratio	34J/T ± 5%
	PSU	AC380~480V, 3W+
		86mm*482.6mm*
2	Size	30mm 482.0mm
/	Weight	Net weight: 27.5kg
-	Coolant demand per machine	About 1L
	Power Cable Model	Custom made, ≥1
~ .		<b>Sthernet</b>
/	Internet Connections	Ethernet

**ENVIRONMENTAL PARAMET** 



Liquid temperature

Liquid flow

□ Limited Data:≥10L/min

transportation.

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10°C@normal mode, 14°C @high performance mode





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g	Weight with pack	aging materia	als: 30kg 🖉	
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ER	S			
			and a second second	

□ Working temperature (inlet): 20°C~50°C@normal mode

- 20°C~40°C@high performance mode;
- $\Box$  Inlet temperature control accuracy  $\pm 2^{\circ}$ C
- □ Storage and transportation temperature: -40~70°C

Note: please empty the liquid in the equipment during storage and

 $\Box$  Flow control accuracy  $\pm$  10%

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M30 SERIES

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Liquid pressure	≤350kpa			uid temperature and flow
	Remarks: when the pressure is more than 350kpa, the		· · ·	lium. If the liquid medium
	water-cooled plate will be deformed and cause the risk of coolant		· · ·	eed to be calculated separa
	leakage.		glycol antifreeze tempe	erature and flow parameter
	×X		$\times$	
Liquid medium	First-level deionized water: meet the requirements of the national			Maria
	standard GB/T 6682-2008 first-level deionized water		Table2 Example of tempe	rature and flow parameters
	Notice:			
	1) If the water conductivity is $\geq$ 100us/cm, the medium must be			Ularling town oratives (i
	replaced;			□ Working temperature (i
	2) The water conductivity is less than 5us/cm when the system is running for the first time.		Tomporatura	15 <sup>°</sup> C~35 <sup>°</sup> C@high performa
	running for the first time.		Temperature	□ Inlet temperature co
whatsminer	WA whatsminer WA whatsminer	whatsminer		Storage and transportation
Liquid PH	Control range: 6~8			Note: please empty the liq
Elquid I II	controllunge. o o			transportation.
		_		
Liquid medium circulation	□ Anti-rust and anti-corrosion of pipeline;			
system(Machine side)	$\Box$ The particle diameter of the liquid medium is $\leq$ 53 microns,			
system (machine side)	that is, the circulation system is equipped with a 270 mesh filter;			🗆 Limited Data: >111 /m
	□ Before connecting the cabinet to the heat dissipation system,		whatsminer	□ Limited Data:≥11L/n
	clean and filter the system pipeline with deionized water to		Flow	Flow control accurac
				Remarks: The temperature
	remove dust, welding slag and other impurities;			at this flow rate is close to
	□ The temperature resistance of system components is above 85 °C;			mode)
	□ The circulatory system is recommended to be equipped with a			
	UV lamp sterilization device to prevent the liquid from breeding			
	bacteria and attenuate the heat dissipation capacity of the system;			
	□ The system is equipped with a 4bar safety relief valve;			
	□ The system is equipped with a constant pressure expansion tank.			
			Warranty Period	One year after le
	Note: when the temperature of the coolant rises after the miner is			, , , , , , , , , , , , , , , , , , ,
	turned on the pressure will rise.			
		<u> </u>	After-sales Contact	1. Email: Suppor
whatsminer	W whatsminer W whatsminer W		Information	2. Telegram Gro
Humidity	Working humidity: 5%RH~85%RH (non-condensing)			
	Storage humidity: 5%RH~95%RH (non-condensing)			
	Long-term storage humidity: 30%RH~69%RH (no condensation)			

flow parameters are based on deionized lium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

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ter leaving the factory

ipport@microbt.com
i Group: @WhatsMiner Community

# WHATSMINER M36S++



# **SPECIFICATION**

Hashrate	$150 \sim 174T \pm 5\%$
Power Ratio	$31J/T \pm 5\%$
PSU	AC380-480V
Size	267.5mmX147mn
Weight	Net weight: 16kg
Power Cable Model	Custom made, ≥
Internet Connections	Ethernet

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature	<ul> <li>Working temper 20°C~40°C @hig</li> <li>Inlet temperatu</li> <li>Storage and training</li> </ul>
Liquid flow	□ Limited Data:≥ □ Flow control acc
	Remarks: 24L/min between inlet and performance mod
Liquid medium	Insulating liquid (S
	Remarks: See next requirements.





### mX401mm

# Weight with packaging materials: 17kg

≥16A

erature (inlet): 20 °C ~45 °C @normal mode

gh performance mode;

ure control accuracy  $\pm$  2°C

ansportation temperature: -40~70°C

≥24L/min ccuracy  $\pm$  10%

in corresponds to the temperature difference d outlet close to 7°C@normal mode, 10°C@high de)

(S5X/S3X)

xt page for details on liquid properties and safety

Humidity

Storage humidity: 5%RH~95%RH (non-condensing)
 Long-term storage humidity: 30%RH~69%RH (no condensation)

Remarks: The above liquid flow parameters are based on S5X/S3X as the liquid medium. If the liquid medium uses other types of coolant, the liquid flow parameters need to be calculated separately. Calculation method: When the mining machine has the same calorific value, the product of the liquid specific heat, density and flow rate is a fixed value, that is, the flow rate is inversely proportional to the product of density and specific heat.

### Coolant EC110 Flow Parameter Calculation Example

Coolant type	Specific heat capacity (J/kg·°C)	Density (kg/m <sup>3</sup> )	Flow (L/min)
S5X/S3X	2274	806	24
EC110	2231	778	=(2274*806*24) /(2231*778)=25.35

# Insulating liquid performance and safety requirements

1) It has good thermodynamic properties (relatively high thermal conductivity, high liquid specific heat value, and low viscosity among similar substances); 2) It should have good chemical and thermal stability relative to the life cycle of the electronic system and the specified working temperature; 3) Appearance and smell, transparent and no odor; 4) Boiling point (°C), >120°C; 5) Flash point>150°C or no flash point; 6) pour point (°C), <-40; 7) Purity (Wt%)  $\geq$  99.5%; 8) Non-volatile residues (Wt ppm) ≤ 10ppm 9) Water content (Wt ppm) ≤ 50ppm 10) Acidity (mg KOH/g)  $\leq 0.03$ 11) Withstand voltage breakdown (KV/2.5mm), initial  $\geq$  20, saturated water state > 10; 12) Volume resistivity ( $\Omega \cdot cm$ )  $\geq$  1X109; dielectric constant (100Hz-10MHz) < 8, dielectric loss factor < 0.7%; 13) The particle size limit in oil, after hot oil circulation, the number of particles larger than 5um in 100ml of oil is ≤2000, and there are no particles larger than 50um. 14) Material compatibility, it should be compatible with most metals and hard inorganic substances, including stainless steel, copper, aluminum, silica, alumina, etc. commonly used in electronic systems, to ensure the appearance, volume and physical properties (mechanical properties)., electrical) impact <1%. For organic substances and elastomers, it should be confirmed by the Soxhlet extraction test, and it should be ensured that after extraction with organic substances in the system, the volume and weight change of organic substances is less than 3%, and the extracted products have no effect on liquid media and other devices that can reach the site through liquid transfer. . The liquid itself should not react chemically with any material it may come into contact with, resulting in the modification or decomposition of the liquid. 15) The physical reaction of the liquid with the contact materials, including dissolution, extraction, etc., should not affect the corresponding functions of the liquid and system materials. For example, the liquid extracts the plasticizer of the cable insulation layer, causing the cable to harden and crack. Or the substances in the system are dissolved in the contact liquid, resulting in an increase in the viscosity of the liquid or deterioration in performance.

16) Dissolved substances caused by liquid convection or driving flow should not affect other materials or devices in contact with the liquid. For example, the plasticizer precipitated from the cable will reduce the heat exchange efficiency on the surface of the heating device through accumulation.
17) The liquid chemical decomposition temperature should be much higher than the system working temperature and potential local overheating temperature.
18) It belongs to the non-toxic category. It is non-irritating to the eyes, non-irritating to the skin, and does not have mutagenic cell mutations or heart diseases.

# WHATSMINER M36S+



# SPECIFICATION

Hashrate	144~152T ± 10%
Power Ratio	34J/T ± 5%
PSU	AC380-480V
Size	267.5mmX147mm
Weight	Net weight: 16kg
Power Cable Model	Custom made, ≥
Internet Connections	Ethernet

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature	<ul> <li>Working temper</li> <li>20°C~40°C@hig</li> <li>Inlet temperatu</li> <li>Storage and trans</li> </ul>
Liquid flow	<ul> <li>□ Limited Data: ≥</li> <li>□ Flow control acc</li> </ul>
	Remarks: 24L/min between inlet and performance mod
Liquid medium	Insulating liquid (S Remarks: See next requirements.





### mX401mm

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≥16A

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ure control accuracy  $\pm$  2°C

ansportation temperature: -40~70°C

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(S5X/S3X)

xt page for details on liquid properties and safety

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M50 SERIES					
<b>WHAT</b> Air Coolir		ER M50	<b>DS++</b>		
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				Safety Guidelines	1. Please check if the power on, beware
					<ol> <li>The product must not be operated in</li> <li>It requires profess product</li> </ol>
SPECIFICATIO	N				<ol> <li>4. It is forbidden to a power is on</li> <li>5. Please use the sta</li> </ol>
Hashrate	138~154T± 5%	Size	430mm*155mm*226mm		6. The size of the air documents for the
Power Ratio	22JT ± 5%@25° C	Weight	11.7KG		
Power On Wall	3036~3388 W± 10%	Internet Connections	Ethernet	Warranty Period	One year after leavin
Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A	After-sales Contact	1. Email: Support@r
Air flow	350CFM	PSU Model	P221B/P222B AC220V ~ 240V	Information	2. Telegram Group: (
X		$\times$	X	$\times$	X



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shts Alternately Flashing: need to find the response error code

- there is any obvious physical failure before
- are of electric shock
- ust be kept away from water sources and must d in a humid environment

essionals to carry out daily maintenance on the

to directly touch the product by hand when

stable voltage air outlet: 143\*218mm, refer to the relevant the specific shape(website-support-download)

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	M50 SERIES	whatsminer	whatsm	iner 🥵 whatsr	miner 🖤	>> whatsminer	whatsminer
	<b>WHAT</b> Air Coolir		ER M50	DS+			
	•	*	- *			Components	Power Supply, Fan, Co Hash Board, Case
		whatsr M50S+	niner			Flashing Light Introduction whatsminer	Blinking Green Light: Working normally Green and Red Lights Alarm status and need
						Safety Guidelines	<ol> <li>Please check if the power on, beware</li> <li>The product must l not be operated in</li> <li>It requires profession</li> </ol>
	SPECIFICATIO	N	×				product 4. It is forbidden to di power is on 5. Please use the stab
3	Hashrate	130~142T ± 5%	Size	430mm*155mm*226mm			6. The size of the air c documents for the
	Power Ratio	24J/T ± 5%@25° C	Weight	11.7KG			
-	Power On Wall	3120~3408W ± 10%	Internet Connections	Ethernet		Warranty Period	One year after leaving
- 	Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A		After-sales Contact	1. Email: Support@m
_	Air flow	350CFM	PSU Model	P221B/P222B AC220V ~ 240V		Information	2. Telegram Group: @
-	X		$\times$				



, Control Board,

hts Alternately Flashing: need to find the response error code

there is any obvious physical failure before

are of electric shock

ust be kept away from water sources and must d in a humid environment

essionals to carry out daily maintenance on the

o directly touch the product by hand when

stable voltage air outlet: 143\*218mm, refer to the relevant the specific shape(website-support-download)

ving the factory

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# WHATSMINER M50S Air Cooling



SPE(	CIFICA	TION

Hashrate	120~130T ± 5%	Size	430mm*155mm*226mm
Power Ratio	$26 \text{J/T} \pm 5\% @25^\circ \text{C}$	Weight	11.7KG
Power On Wall	3120~3380W ± 10%	Internet Connections	Ethernet
Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A
Air flow	350CFM	PSU Model	P221B/P222B AC220V ~ 240V



Components	Power Supply, Fan, Hash Board, Case
Flashing Light Introduction	Blinking Green Ligh Working normally
	Green and Red Ligh Alarm status and ne
Safety Guidelines	<ol> <li>Please check if the power on, bewar</li> <li>The product must not be operated if</li> <li>It requires profest product</li> <li>It is forbidden to power is on</li> <li>Please use the st</li> <li>The size of the aid documents for the store of the</li></ol>
Warranty Period	One year after leavi
After-sales Contact Information	1. Email: Support@ 2. Telegram Group:

Control Board,

ht:

hts Alternately Flashing: need to find the response error code

- there is any obvious physical failure before
- are of electric shock
- ust be kept away from water sources and must
- in a humid environment
- essionals to carry out daily maintenance on the

to directly touch the product by hand when

stable voltage air outlet: 143\*218mm, refer to the relevant the specific shape(website-support-download)

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# M50 SERIES WHATSMINER M50 Air Cooling Components Hash Board, Case Flashing Light Introduction Working normally whatsminer M50

CL	ECIEICATION
- 3F	ECIFICATION

Hashrate	110~120T ± 5%	Size	430mm*155mm*226mm	
Power Ratio	29J/T ± 5%@25° C	Weight	11.7KG	
Power On Wall	3190~3480W ± 10%	Internet Connections	Ethernet	
Working Temperature	-5° C ~ 35° C	Power Cable Model	IEC C19, ≥16A	
Air flow	350CFM	PSU Model	P221B/P222B AC220V ~ 240V	

Safety Guidelines	<ol> <li>Please check if th power on, beware</li> </ol>
	2. The product mus
	not be operated i 3. It requires profes
	product
	4. It is forbidden to
	power is on
	5. Please use the sta
	<ol><li>6. The size of the air</li></ol>
	documents for th
Warranty Period	One year after leavir
whatsminer	whatsminer
After-sales Contact	1. Email: Support@
Information	2. Telegram Group:
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# Power Supply, Fan, Control Board,

Blinking Green Light:

Green and Red Lights Alternately Flashing: Alarm status and need to find the response error code

there is any obvious physical failure before

re of electric shock

st be kept away from water sources and must

in a humid environment

ssionals to carry out daily maintenance on the

directly touch the product by hand when

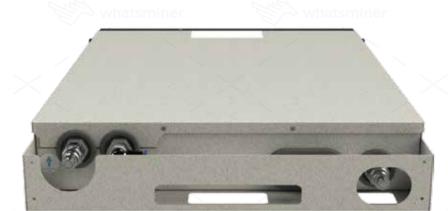
table voltage ir outlet: 143\*218mm, refer to the relevant he specific shape(website-support-download)

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# WHATSMINER M53S++ Hydro Cooling

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# **SPECIFICATION**

	Hashrate	310~328T±10%
	Power Ratio	22J/T ± 5%
/	PSU	AC380~480V, 3W+ §
	Size	86mm*482.6mm*6
1	Weight	Net weight: 27.5kg
	Coolant demand per machine	About 1L
	Power Cable Model	Custom made, ≥1
	Internet Connections	Ethernet
N.		

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

Liquid flow

□ Working temperature (inlet): 20 °C ~50 °C @normal mode 20 C~40 C@high performance mode;  $\Box$  Inlet temperature control accuracy ± 2 °C □ Storage and transportation temperature: -40~70°C

transportation.

□ Limited Data:≥10L/min  $\Box$  Flow control accuracy  $\pm$  10%

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10 C @normal mode, 14 C @high performance mode

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g Weight with packa	iging mat	erials:	30kg	
whatsi	miner		what what what here is a second secon	
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16A			·	

Note: please empty the liquid in the equipment during storage and

Liquid pressure	≤350kpa Remarks: when the pressure is more than 350kpa, the water-cooled plate will be deformed and cause the risk of coolant leakage.		water as the liq and flow param	bove liquid temperature and flo uid medium. If the liquid medium eters need to be calculated sepa e temperature and flow parame
Liquid medium	First-level deionized water: meet the requirements of the national standard GB/T 6682-2008 first-level deionized water	-	Table2 Example o	f temperature and flow paramet
	Notice: 1) If the water conductivity is ≥100us/cm, the medium must be replaced; 2) The water conductivity is less than 5us/cm when the system is running for the first time.	-	Temperature	<ul> <li>□ Working temperatur</li> <li>15℃~35℃@high perfor</li> <li>□ Inlet temperature</li> <li>□ Storage and transpo</li> </ul>
Liquid PH	Control range: 6~8	-		Note: please empty the transportation.
Liquid medium circulation system(Machine side)	<ul> <li>Anti-rust and anti-corrosion of pipeline;</li> <li>The particle diameter of the liquid medium is ≤53 microns, that is, the circulation system is equipped with a 270 mesh filter;</li> <li>Before connecting the cabinet to the heat dissipation system, clean and filter the system pipeline with deionized water to remove dust, welding slag and other impurities;</li> <li>The temperature resistance of system components is above 85°C;</li> <li>The circulatory system is recommended to be equipped with a</li> </ul>		Flow	<ul> <li>□ Limited Data:≥111</li> <li>□ Flow control accur</li> <li>Remarks: The temperat</li> <li>at this flow rate is close</li> <li>mode)</li> </ul>
	<ul> <li>UV lamp sterilization device to prevent the liquid from breeding bacteria and attenuate the heat dissipation capacity of the system;</li> <li>□ The system is equipped with a 4bar safety relief valve;</li> <li>□ The system is equipped with a constant pressure expansion tank.</li> </ul>			
	Note: when the temperature of the coolant rises after the miner is turned on the pressure will rise.		Warranty Perio	,
Humidity	<ul> <li>Working humidity: 5%RH~85%RH (non-condensing)</li> <li>Storage humidity: 5%RH~95%RH (non-condensing)</li> <li>Long-term storage humidity: 30%RH~69%RH (no condensation)</li> </ul>	-	Information	2. Telegram G

flow parameters are based on deionized lium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

neters of 30% ethylene glycol antifreeze

ture (inlet): 15°C~45°C@normal mode formance mode re control accuracy ± 2°C portation temperature: -40~70°C

he liquid in the equipment during storage and

11L/min curacy± 10%

erature difference between the inlet and outlet liquids ose to 10°C@normal mode, 14°C@high-performance

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# WHATSMINER M53S+ Hydro Cooling

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	X	
Hashrate		282~298T±10%

SPECIFICATION

	Power Ratio	24JT ± 5%
/	PSU	AC380~480V, 3W+
	Size	86mm*482.6mm*
-	Weight	Net weight: 27.5kg
	Coolant demand per machine	About 1L
	Power Cable Model	Custom made, ≥1
	Internet Connections	Ethernet
24	whatenings	whatapainar

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

transportation.

Liquid flow

□ Limited Data:≥10L/min  $\Box$  Flow control accuracy  $\pm$  10%

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10 C @normal mode, 14 C @high performance mode



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g Weight with packag	ging mat	erials:	30kg	
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16A				
	/	~		

□ Working temperature (inlet): 20 °C ~ 50 °C @normal mode

- 20 C~40 C@high performance mode;
- $\Box$  Inlet temperature control accuracy ± 2 °C
- □ Storage and transportation temperature: -40~70°C

Note: please empty the liquid in the equipment during storage and

Liquid pressure	≤350kpa Remarks: when the pressure is more than 350kpa, the water-cooled plate will be deformed and cause the risk of coolant leakage.		water as the lic and flow paran	above liquid temperature and flo quid medium. If the liquid medium neters need to be calculated sepa ze temperature and flow paramet
Liquid medium	First-level deionized water: meet the requirements of the national standard GB/T 6682-2008 first-level deionized water		Table2 Example of	of temperature and flow paramet
	Notice: 1) If the water conductivity is ≥100us/cm, the medium must be replaced; 2) The water conductivity is less than 5us/cm when the system is running for the first time.	-	Temperature	<ul> <li>□ Working temperature</li> <li>15℃~35℃@high perfor</li> <li>□ Inlet temperature</li> <li>□ Storage and transport</li> </ul>
Liquid PH	Control range: 6~8	-		Note: please empty the transportation.
Liquid medium circulation system(Machine side)	<ul> <li>Anti-rust and anti-corrosion of pipeline;</li> <li>The particle diameter of the liquid medium is ≤53 microns, that is, the circulation system is equipped with a 270 mesh filter;</li> <li>Before connecting the cabinet to the heat dissipation system, clean and filter the system pipeline with deionized water to remove dust, welding slag and other impurities;</li> <li>The temperature resistance of system components is above 85 °C;</li> <li>The circulatory system is recommended to be equipped with a</li> </ul>		Flow	<ul> <li>□ Limited Data:≥111</li> <li>□ Flow control accur</li> <li>Remarks: The temperat at this flow rate is close mode)</li> </ul>
	<ul> <li>UV lamp sterilization device to prevent the liquid from breeding bacteria and attenuate the heat dissipation capacity of the system;</li> <li>The system is equipped with a 4bar safety relief valve;</li> <li>The system is equipped with a constant pressure expansion tank.</li> </ul>			
	Note: when the temperature of the coolant rises after the miner is turned on the pressure will rise.		Warranty Peri	od One year after
Humidity	<ul> <li>Working humidity: 5%RH~85%RH (non-condensing)</li> <li>Storage humidity: 5%RH~95%RH (non-condensing)</li> </ul>	-	After-sales Co Information	ntact 1. Email: Supp 2. Telegram G
	□ Long-term storage humidity: 30%RH~69%RH (no condensation)			

flow parameters are based on deionized lium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

neters of 30% ethylene glycol antifreeze

ture (inlet): 15°C~45°C@normal mode formance mode re control accuracy ± 2°C portation temperature: -40~70°C

he liquid in the equipment during storage and

11L/min curacy± 10%

erature difference between the inlet and outlet liquids ose to 10°C@normal mode, 14°C@high-performance

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# WHATSMINER M53S Hydro Cooling

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Hashrate	260~274T ± 10%
Power Ratio	26J/T ± 5%
PSU	AC380~480V, 3W+
Size	86mm*482.6mm*
Weight	Net weight: 27.5k
Coolant demand per machine	About 1L
Power Cable Model	Custom made, ≥
Internet Connections	Ethernet

**SPECIFICATION** 

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

transportation.

Liquid flow

□ Limited Data:≥10L/min  $\Box$  Flow control accuracy  $\pm$  10%

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10 C @normal mode, 14 C @high performance mode



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ground, input 10kw			/	
663mm with handle				
g Weight with packag	ging mat	erials:	30kg	
whatsn	niner		- <del>Vina</del> wha	
16A				
	/	~		

□ Working temperature (inlet): 20 °C ~ 50 °C @normal mode

- 20 C~40 C@high performance mode;
- $\Box$  Inlet temperature control accuracy ± 2 °C
- □ Storage and transportation temperature: -40~70°C

Note: please empty the liquid in the equipment during storage and

Liquid pressure	≤350kpa Remarks: when the pressure is more than 350kpa, the water-cooled plate will be deformed and cause the risk of coolant leakage.		water as the liq and flow param	bove liquid temperature and flow uid medium. If the liquid mediur leters need to be calculated sepa e temperature and flow paramet
Liquid medium	First-level deionized water: meet the requirements of the national standard GB/T 6682-2008 first-level deionized water Notice: 1) If the water conductivity is ≥100us/cm, the medium must be replaced; 2) The water conductivity is less than 5us/cm when the system is	-	Table2 Example of	f temperature and flow parameter D Working temperature 15°C~35°C @high perform
Liquid PH Liquid medium circulation	<ul> <li>running for the first time.</li> <li>Control range: 6~8</li> <li>Anti-rust and anti-corrosion of pipeline;</li> </ul>	-	Temperature	<ul> <li>Inlet temperature</li> <li>Storage and transport</li> <li>Note: please empty the transportation.</li> </ul>
system(Machine side)	<ul> <li>□ The particle diameter of the liquid medium is ≤53 microns, that is, the circulation system is equipped with a 270 mesh filter;</li> <li>□ Before connecting the cabinet to the heat dissipation system, clean and filter the system pipeline with deionized water to remove dust, welding slag and other impurities;</li> <li>□ The temperature resistance of system components is above 85 °C;</li> <li>□ The circulatory system is recommended to be equipped with a</li> </ul>		Flow	<ul> <li>□ Limited Data:≥11L</li> <li>□ Flow control accur</li> <li>Remarks: The temperat</li> <li>at this flow rate is close</li> <li>mode)</li> </ul>
	<ul> <li>UV lamp sterilization device to prevent the liquid from breeding bacteria and attenuate the heat dissipation capacity of the system;</li> <li>The system is equipped with a 4bar safety relief valve;</li> <li>The system is equipped with a constant pressure expansion tank.</li> </ul>			
	Note: when the temperature of the coolant rises after the miner is turned on the pressure will rise.	-	Warranty Perio After-sales Con Information	,
Humidity	<ul> <li>Working humidity: 5%RH~85%RH (non-condensing)</li> <li>Storage humidity: 5%RH~95%RH (non-condensing)</li> <li>Long-term storage humidity: 30%RH~69%RH (no condensation)</li> </ul>			

flow parameters are based on deionized lium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

neters of 30% ethylene glycol antifreeze

ture (inlet): 15°C~45°C@normal mode formance mode re control accuracy ± 2°C portation temperature: -40~70°C

he liquid in the equipment during storage and

11L/min curacy± 10%

erature difference between the inlet and outlet liquids ose to 10°C@normal mode, 14°C@high-performance

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# WHATSMINER M53 Hydro Cooling

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	E	•	٥	atsminer	Jr System what

SPECIFICATION	
Hashrate	226~250T ± 10%
Power Ratio	29J/T ± 5%
PSU	AC380~480V, 3W+ gi
Size	86mm*482.6mm*66
Weight	Net weight: 27.5kg
Coolant demand per machine	About 1L
Power Cable Model	Custom made, ≥16
Internet Connections	Ethernet

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

transportation.

Liquid flow

□ Limited Data:≥10L/min  $\Box$  Flow control accuracy  $\pm$  10%

Remarks: 10L/min corresponds to the temperature difference between inlet and outlet water close to 10 C @normal mode, 14 C @high performance mode





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ground	l, input 10kw	,			
663mm	with handle	2	$\times$		
g We	ight with pao	ckaging mate	erials: 30	kg	
	Sty what	sminer		wha <del>کرک</del>	
				/	
104					
16A					
		/			

□ Working temperature (inlet): 20 °C ~50 °C @normal mode

- 20 C~40 C@high performance mode;
- $\Box$  Inlet temperature control accuracy ± 2°C
- □ Storage and transportation temperature: -40~70 °C

Note: please empty the liquid in the equipment during storage and

Liquid pressure	≪350kpa	Remarks: The above l	iquid temperature and flow
	Remarks: when the pressure is more than 350kpa, the	· · ·	edium. If the liquid mediun
	water-cooled plate will be deformed and cause the risk of coolant	·	need to be calculated sepa
	leakage.	glycol antifreeze temp	perature and flow parameter
Liquid medium	First-level deionized water: meet the requirements of the national		
	standard GB/T 6682-2008 first-level deionized water	Table2 Example of temp	erature and flow paramete
	Notice:		
	1) If the water conductivity is ≥100us/cm, the medium must be		Working temperature
	replaced; 2) The water conductivity is less than 5us/cm when the system is		15℃~35℃@high perform
	running for the first time.	Temperature	□ Inlet temperature c
		Temperature	□ Storage and transpor
Liquid PH	Control range: 6~8		Note: please empty the l
			transportation.
whatsminer	whatsminer & whatsminer &		
Liquid medium circulation	□ Anti-rust and anti-corrosion of pipeline;		
system(Machine side)	$\Box$ The particle diameter of the liquid medium is $\leq$ 53 microns,		
	that is, the circulation system is equipped with a 270 mesh filter;		□ Limited Data:≥11L
	Before connecting the cabinet to the heat dissipation system,	Flow	□ Flow control accura
	clean and filter the system pipeline with deionized water to		
	remove dust, welding slag and other impurities;		Remarks: The temperatu
	$\Box$ The temperature resistance of system components is above 85 C;		at this flow rate is close t
	□ The circulatory system is recommended to be equipped with a		mode)
	UV lamp sterilization device to prevent the liquid from breeding		
	bacteria and attenuate the heat dissipation capacity of the system;		
	□ The system is equipped with a 4bar safety relief valve;		
	$\Box$ The system is equipped with a constant pressure expansion tank.		
	whatsminer WS whatsminer		
		Warranty Period	One year after
	Note: when the temperature of the coolant rises after the miner is turned on the pressure will rise.		
	turned on the pressure wittinse.	After-sales Contact	1. Email: Supp
$\langle \cdots \rangle$	$\times$ $\times$ $\times$	Information	2. Telegram G
Humidity	□ Working humidity: 5%RH~85%RH (non-condensing)	internation	2. relegium of
	□ Storage humidity: 5%RH~95%RH (non-condensing)		
	□ Long-term storage humidity: 30%RH~69%RH (no condensation)		

flow parameters are based on deionized ium uses antifreeze, the liquid temperature eparately. Table 2 shows an example of 30% neters.

eters of 30% ethylene glycol antifreeze

ure (inlet): 15 C ~45 C @normal mode formance mode re control accuracy ± 2 C portation temperature: -40~70 C

he liquid in the equipment during storage and

Isminer

11L/min uracy±10%

rature difference between the inlet and outlet liquids se to 10 C @normal mode, 14 C @high-performance

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# WHATSMINER M56S++



Hashrate	222~236T±10%
Power Ratio	22J/T ± 5%
PSU	AC380~480V
Size	267.5mmX147mm
Weight	Net weight: 16kg
Power Cable Model	Custom made, ≥1
Internet Connections	Ethernet

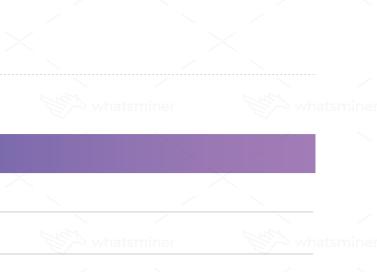
# **ENVIRONMENTAL PARAMETERS**

Liquid temperature	<ul> <li>□ Working tempe</li> <li>20 C ~40 C @hig</li> <li>□ Inlet temperatu</li> <li>□ Storage and tra</li> </ul>
Liquid flow	□ Limited Data:≥ □ Flow control ac
	Remarks: 24L/min between inlet and performance mod
	/
Liquid medium 📈	Insulating liquid (
	Remarks: See next requirements.









## nX401mm with handle

## Weight with packaging materials: 17kg

## 16A

erature (inlet): 20 °C ~45 °C @normal mode gh performance mode;

ture control accuracy  $\pm$  2°C

ansportation temperature: -40~70°C

≥24L/min ccuracy  $\pm$  10%

n corresponds to the temperature difference d outlet close to 7°C@normal mode, 10°C@high de)

(S5X/S3X)

xt page for details on liquid properties and safety

Humidity

Storage humidity: 5%RH~95%RH (non-condensing)
 Long-term storage humidity: 30%RH~69%RH (no condensation)

Remarks: The above liquid flow parameters are based on S5X/S3X as the liquid medium. If the liquid medium uses other types of coolant, the liquid flow parameters need to be calculated separately. Calculation method: When the mining machine has the same calorific value, the product of the liquid specific heat, density and flow rate is a fixed value, that is, the flow rate is inversely proportional to the product of density and specific heat.

#### Coolant EC110 Flow Parameter Calculation Example

Coolant type	Specific heat capacity (J/kg⋅°C)	Density (kg/m³)	Flow (L/min)
S5X/S3X	2274	806	24
EC110	2231	778	=(2274*806*24) /(2231*778)=25.35

# Insulating liquid performance and safety requirements

1) It has good thermodynamic properties (relatively high thermal conductivity, high liquid specific heat value, and low viscosity among similar substances); 2) It should have good chemical and thermal stability relative to the life cycle of the electronic system and the specified working temperature; 3) Appearance and smell, transparent and no odor; 4) Boiling point (°C), >120°C; 5) Flash point>150°C or no flash point; 6) pour point (°C), <-40; 7) Purity (Wt%)  $\geq$  99.5%; 8) Non-volatile residues (Wt ppm) ≤ 10ppm 9) Water content (Wt ppm)  $\leq$  50ppm 10) Acidity (mg KOH/g)  $\leq 0.03$ 11) Withstand voltage breakdown (KV/2.5mm), initial  $\ge$  20, saturated water state > 10; 12) Volume resistivity ( $\Omega \cdot cm$ )  $\geq$  1X109; dielectric constant (100Hz-10MHz) < 8, dielectric loss factor < 0.7%; 13) The particle size limit in oil, after hot oil circulation, the number of particles larger than 5um in 100ml of oil is  $\leq$  2000, and there are no particles larger than 50um. 14) Material compatibility, it should be compatible with most metals and hard inorganic substances, including stainless steel, copper, aluminum, silica, alumina, etc. commonly used in electronic systems, to ensure the appearance, volume and physical properties (mechanical properties)., electrical) impact <1%. For organic substances and elastomers, it should be confirmed by the Soxhlet extraction test, and it should be ensured that after extraction with organic substances in the system, the volume and weight change of organic substances is less than 3%, and the extracted products have no effect on liquid media and other devices that can reach the site through liquid transfer. . The liquid itself should not react chemically with any material it may come into contact with, resulting in the modification or decomposition of the liquid. 15) The physical reaction of the liquid with the contact materials, including dissolution, extraction, etc., should not affect the corresponding functions of the liquid and system materials. For example, the liquid extracts the plasticizer of the cable insulation layer, causing the cable to harden and crack. Or the substances in the system are dissolved in the contact liquid, resulting in an increase in the viscosity of the liquid or deterioration in performance.

16) Dissolved substances caused by liquid convection or driving flow should not affect other materials or devices in contact with the liquid. For example, the plasticizer precipitated from the cable will reduce the heat exchange efficiency on the surface of the heating device through accumulation.
17) The liquid chemical decomposition temperature should be much higher than the system working temperature and potential local overheating temperature.
18) It belongs to the non-toxic category. It is non-irritating to the eyes, non-irritating to the skin, and does not have mutagenic cell mutations or heart diseases.

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tsminer

# WHATSMINER M56S+



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**SPECIFICATION** 

	Hashrate	206~224T ± 10%
	Power Ratio	24J/T ± 5%
	PSU	AC380~480V
	Size	267.5mmX147mm
	Weight	Net weight: 16kg
	Power Cable Model	Custom made, ≥1
_	Internet Connections	Ethernet
-		

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

20 C~40 C@high performance mode;

Liquid flow

 $\Box$  Flow control accuracy  $\pm$  10%

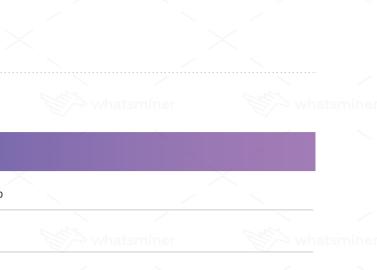
Remarks: 24L/min corresponds to the temperature difference between inlet and outlet close to 7°C@normal mode, 10°C@high performance mode)

Liquid medium

Remarks: See next page for details on liquid properties and safety requirements.







## nX401mm with handle

## Weight with packaging materials: 17kg

## ⊧16A

- □ Working temperature (inlet): 20 °C ~ 45 °C @normal mode
- $\Box$  Inlet temperature control accuracy  $\pm$  2°C
- □ Storage and transportation temperature: -40~70°C

# □ Limited Data: ≥24L/min

## Insulating liquid (S5X/S3X)

Humidity

Storage humidity: 5%RH~95%RH (non-condensing)
 Long-term storage humidity: 30%RH~69%RH (no condensation)

Remarks: The above liquid flow parameters are based on S5X/S3X as the liquid medium. If the liquid medium uses other types of coolant, the liquid flow parameters need to be calculated separately. Calculation method: When the mining machine has the same calorific value, the product of the liquid specific heat, density and flow rate is a fixed value, that is, the flow rate is inversely proportional to the product of density and specific heat.

### Coolant EC110 Flow Parameter Calculation Example

Coolant type	Specific heat capacity (J/kg·°C)	Density (kg/m <sup>3</sup> )	Flow (L/min)
S5X/S3X	2274	806	24
EC110	2231	778	=(2274*806*24) /(2231*778)=25.35

# Insulating liquid performance and safety requirements

1) It has good thermodynamic properties (relatively high thermal conductivity, high liquid specific heat value, and low viscosity among similar substances); 2) It should have good chemical and thermal stability relative to the life cycle of the electronic system and the specified working temperature; 3) Appearance and smell, transparent and no odor; 4) Boiling point (°C), >120°C; 5) Flash point>150°C or no flash point; 6) pour point (°C), <-40; 7) Purity (Wt%)  $\geq$  99.5%; 8) Non-volatile residues (Wt ppm) ≤ 10ppm 9) Water content (Wt ppm) ≤ 50ppm 10) Acidity (mg KOH/g)  $\leq 0.03$ 11) Withstand voltage breakdown (KV/2.5mm), initial  $\geq$  20, saturated water state > 10; 12) Volume resistivity ( $\Omega \cdot cm$ )  $\geq$  1X109; dielectric constant (100Hz-10MHz) < 8, dielectric loss factor < 0.7%; 13) The particle size limit in oil, after hot oil circulation, the number of particles larger than 5um in 100ml of oil is ≤2000, and there are no particles larger than 50um. 14) Material compatibility, it should be compatible with most metals and hard inorganic substances, including stainless steel, copper, aluminum, silica, alumina, etc. commonly used in electronic systems, to ensure the appearance, volume and physical properties (mechanical properties)., electrical) impact <1%. For organic substances and elastomers, it should be confirmed by the Soxhlet extraction test, and it should be ensured that after extraction with organic substances in the system, the volume and weight change of organic substances is less than 3%, and the extracted products have no effect on liquid media and other devices that can reach the site through liquid transfer. . The liquid itself should not react chemically with any material it may come into contact with, resulting in the modification or decomposition of the liquid. 15) The physical reaction of the liquid with the contact materials, including dissolution, extraction, etc., should not affect the corresponding functions of the liquid and system materials. For example, the liquid extracts the plasticizer of the cable insulation layer, causing the cable to harden and crack. Or the substances in the system are dissolved in the contact liquid, resulting in an increase in the viscosity of the liquid or deterioration in performance.

16) Dissolved substances caused by liquid convection or driving flow should not affect other materials or devices in contact with the liquid. For example, the plasticizer precipitated from the cable will reduce the heat exchange efficiency on the surface of the heating device through accumulation.
17) The liquid chemical decomposition temperature should be much higher than the system working temperature and potential local overheating temperature.
18) It belongs to the non-toxic category. It is non-irritating to the eyes, non-irritating to the skin, and does not have mutagenic cell mutations or heart diseases.

# WHATSMINER M56S



100

Internet Connections

Power Cable Model

**SPECIFICATION** 

Hashrate

PSU

Size

Weight

**Power Ratio** 

Custom made, ≥16A Ethernet

 $26J/T \pm 5\%$ 

AC380~480V

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

Liquid flow

Liquid medium

□ Limited Data:≥24L/min  $\Box$  Flow control accuracy  $\pm$  10%

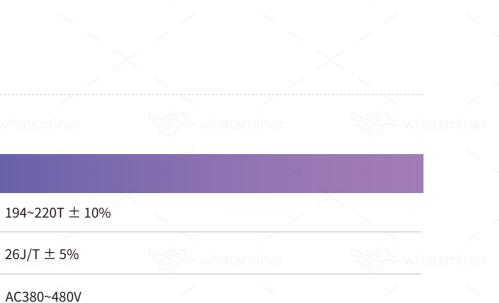
Remarks: 24L/min corresponds to the temperature difference between inlet and outlet close to 7°C@normal mode, 10°C@high performance mode)

Insulating liquid (S5X/S3X)

requirements.







## 267.5mmX147mmX401mm with handle

## Net weight: 16kg Weight with packaging materials: 17kg

□ Working temperature (inlet): 20 °C ~45 °C @normal mode

- 20°C~40°C@high performance mode;
- $\Box$  Inlet temperature control accuracy  $\pm$  2°C
- □ Storage and transportation temperature: -40~70 °C

Remarks: See next page for details on liquid properties and safety

Humidity

Storage humidity: 5%RH~95%RH (non-condensing)
 Long-term storage humidity: 30%RH~69%RH (no condensation)

Remarks: The above liquid flow parameters are based on S5X/S3X as the liquid medium. If the liquid medium uses other types of coolant, the liquid flow parameters need to be calculated separately. Calculation method: When the mining machine has the same calorific value, the product of the liquid specific heat, density and flow rate is a fixed value, that is, the flow rate is inversely proportional to the product of density and specific heat.

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# Insulating liquid performance and safety requirements

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📚 💫 whatsmin

🔊 🏳 whatsminer

tsminer

# WHATSMINER M56



# **SPECIFICATION**

Hashrate	$168 \sim 194T \pm 10\%$
Power Ratio	$29J/T \pm 5\%$
PSU	AC380~480V
Size	267.5mmX147mm
Weight	Net weight: 16kg
Power Cable Model	Custom made, ≥1
Internet Connections	Ethernet

# **ENVIRONMENTAL PARAMETERS**

Liquid temperature

□ Working temperature (inlet): 20 °C ~ 45 °C @normal mode 20 C~40 C@high performance mode;  $\Box$  Inlet temperature control accuracy  $\pm$  2°C □ Storage and transportation temperature: -40~70°C

Liquid flow

□ Limited Data:≥24L/min  $\square$  Flow control accuracy  $\pm$  10%

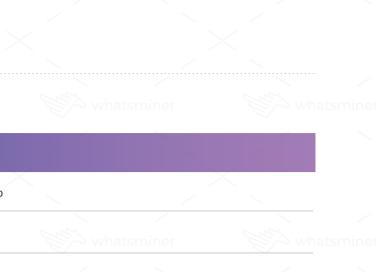
Remarks: 24L/min corresponds to the temperature difference between inlet and outlet close to 7°C@normal mode, 10°C@high performance mode)

Liquid medium

requirements.







## nX401mm with handle

## Weight with packaging materials: 17kg

### 16A

### Insulating liquid (S5X/S3X)

Remarks: See next page for details on liquid properties and safety

Humidity

□ Storage humidity: 5%RH~95%RH (non-condensing) □ Long-term storage humidity: 30%RH~69%RH (no condensation)

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