HELTEC BMS **HT-SW01A**

Super Energy-Gathered Pulse Technology

Capacitor Energy-Storage Precision Pulse Spot Welder

User Manual



Thank you for choosing HeltecBMS series products, it will bring you convenience and efficiency for spot welding work. For optimal user experience, please read the manual carefully before using and keep it for future reference. HeltecBMS has the rights to upgrade the machine and modify the manual with no more notices, thanks for understanding.

Product Features

1. Compared to the traditional AC spot welding machine, the new-designed SW01A capacitor energy-storage spot welder has no interfere to the electric circuit, no more tripping problems.
2. The SW01A adopts the latest energy-gathered pulse welding technology,it has a great welding power,the welding spot is nice and elegant,ensuring you a reliable welding effect.
3. The maximum welding power of the machine can be up to 11.6 KW, meeting the needs for large-batteries welding.
4. The welding power can be adjusted conveniently via two buttons according to the thickness of welding objects, the LED screen will display the welding parameters.
5. The machine is equipped with two super capacitors which have long working-life and large capacity, ensuring the low power-consumption and high output welding work.
6. The 'AT'automatic welding mode helps you finish the welding work efficiently.
7. Compatible with 7 series mobile welding pen.
8. The compact aluminum alloy shell can effectively dissipate heat.

Applications

- Spot welding of Lithium iron phosphate battery, Ternary lithium battery, nickel steel.
- Assemble or repair battery packs and portable sources.
- Production of small battery packs for mobile electronic devices.
- Welding of lithium polymer battery, cell phone battery, and protective circuit board.
- Spot welding leaders to different metal projects, such as iron, stainless steel, brass, nickel, molybdenum and titanium.

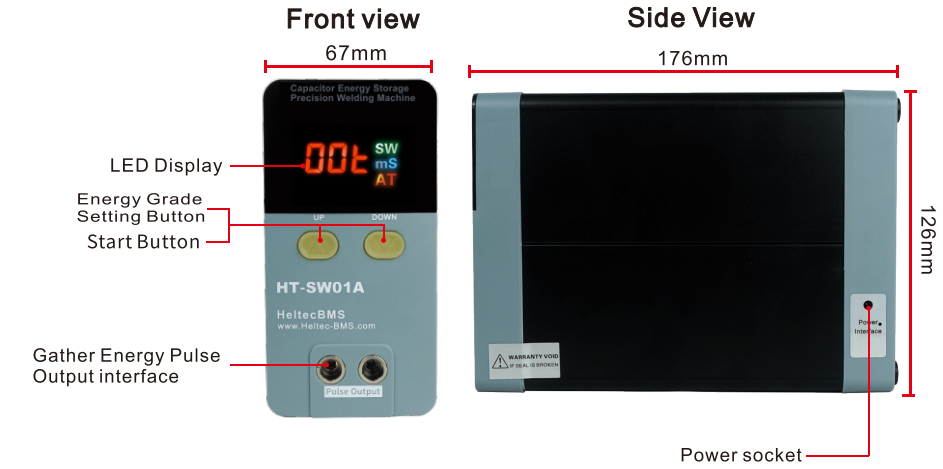
Parameters

Model	HT-SW01A	Voltage Output	5~5.8V (Peak)
Voltage Input	AC 100-240V 50/60HZ	Peak Welding Energy	60J
Pulse Power	11.6KW (Peak)	Trigger Mode	AT
Energy Grade	0-99T	Welding Mode	separated-style welding pen
Pulse Time	0~5mS	Preload Delay	20~50mS
Adapter Parameter	15V1.3A(Peak)	Charging Time	30~40min
Dimension	67(L)x176(W)x126(H)mm	Weight	1.45KG

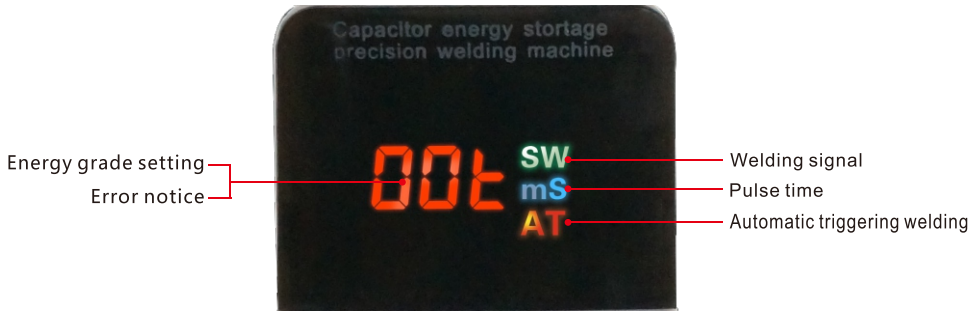
Packing List

①Main machine×1pc
②Power adapter×1pc
③Spanner×1pc
④Manual & Warranty Card×1pc
⑤Welding pin on the welding pen(HB-70A)×1pair
⑥70A separated-style welding pen ×1pair
⑦Spot welding base made of high-conductivity alloy x 1pc

Product Diagram



Control panel sketch map





'CH'— charging state of the welder.



This means the energy release is (25t).
The release energy grade for AT mode can be adjusted from 00 to 99.



'SW'—welding state of the welder.



E01 is spot welding fault indicator.

General introduction of SW01A spot welder

1.Power supply and mobile welding pen installation



①Plug the power output plug into SW01A spot welder power connection port.



②Plug the adapter into an AC 100-240 volt wall socket to charge the machine.



③Insert the mobile welding pen and make sure the connection is solid.

*Power inside the capacitor is released for safe transportation before leaving the factory. When you receive the machine, please turn it on, charge it for 30~40 minutes, and wait for the voltage to rise between 5.2~5.8V before spot welding.

2.Introduction of the LED display



1.Starting up——
Press the "▲/▼"button at the same time to switch on the spot welder.



2.After the machine is powered on for the first time, the LED will show "CH" intermittently . The spot welder is charging.



3. When the voltage in LED display rises to between 5.2 and 5.8V, it means the machine is full of energy and ready for spot welding.



4.Set energy grade——
When you need to plus or minus the energy grade, you can press the "▲/▼" button.



5.When the machine is not in use, please press the "▲/▼" button at the same time to turn off the spot welder and unplug the power adapter from the wall socket.

3.Charging time of different models

Model	SW01A	SW01A+	SW01B	SW01B+	SW01D
Charging Time	40min	40min	30min	20min	20min

4.Spot welding thickness reference table

Thickness	0.1mm	0.12mm	0.15mm	0.2mm
Pure nickel	06-08t	10-11t	12-15t	20-25t
Nickel plated steel	03-04t	07-08t	10-12t	15-18t

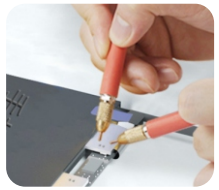
Please choose the proper energy grade and pulse current according to different object materials and thicknesses.

5.Operation steps

AT mode--automatic welding(suitable for welding a large number of batteries for a long time)



1.Starting up default to AT mode



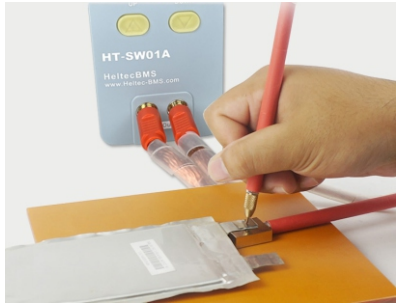
2.Hold the welding pen and apply a certain pressure to the object's surface (e.g. nickel strip) simultaneously. Automatic welding begins after about 20ms.



3.Check the spots' reliability. Finish spot welding.

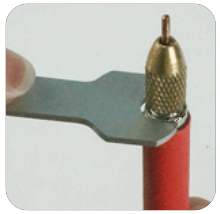
Replace the spot welding base is high conductivity alloy can finish single point butt welding.





Replace the welding pin and welding base(70A)

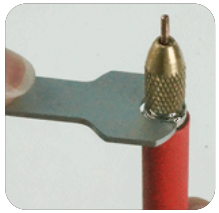
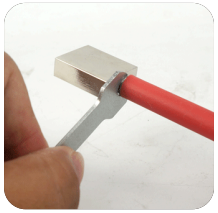
Replace the welding pin



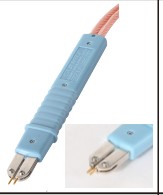
Use a spanner to screw out the welding fixed pen holder and replace the welding pin.

Installation instructions of the spot welding base :


Use a spanner to screw out the welding fixed pen holder and replace the spot welding base.

7 serial welding pen/optional

Model	HB-70A	HB-70BN	HB-71A	HB-71B	HB-73B
Illustration					
Welding method	One pin each welding pen	Two pins flat welding	Two pins flat welding	Single point butt welding	Two pins flat welding
Structure Differences	Separate Pins	Welding pins distance 3~7 mm(adjustable)	Welding pins distance 1~7 mm(adjustable)	Single point butt welding	Adjustable welding pressure, welding pins distance 3~7 mm(adjustable), pulse signal.
Applications	18650, 21700, lithium-ion, resistance, stainless steel net, etc.	18650, 21700, lithium-ion, iron, stainless steel, nickel, Mu, brass, titanium, etc.	Nickel sheet, circuit, blue teeth device repair, etc.	Polymer battery, stainless steel, etc.	18650, 21700, lithium-ion, iron, stainless steel, nickel, Mu, brass, titanium, etc.
Recomm-endation	Lithium battery welding	Lithium battery welding	Small hardware (similar with 70B's function)	Single-point butt welding	Normal battery pack welding

6.Cautions during welding process

1.You need to give each welding pin the same pressure to make sure the welding spots are all reliable.
2.Use different welding pressures according to different thickness materials. (too light pressure will lead to false welding and breakdown of weldment; too heavy pressure will lead to weak spot welding)
3.Keep two welding pins separate, or a shot circuit will occur.

Troubleshooting

Error Types	Issues	Solutions
Panel display "E01"	Are the welding pins in contact with each other?	Keep welding pins separate and keep welding pen copper wires separate
	Oxidation of welding pins	Use a grinder to remove the oxidation layer
Weak spots	Is the voltage under 5.2?	Charge the machine to between 5.2~5.8 volts or higher
No energy release	Is the adapter from HeltecBMS?	Use the HeltecBMS adapter

Attentions

1.Power inside the capacitor has been released for safe transportation before leaving the factory. When you receive the machine, please turn it on, charge it for 30~40 minutes, and wait for the voltage to rise between 5.2~5.8V before spot welding.
2.Use HeltecBMS adapter to work with the welding machine. An adapter from a third-party supplier will damage the device.
3.Please wear glasses and gloves during the welding process.
4.Removing the oxidation layer on welding pins is good for energy transfer.
5.Unplug the machine when it's not in use.
6.The welding current displayed instantaneously is pulse release, ordinary testing instruments cannot measure.
7.Welding materials should be cleaned before welding. Remove any oil stains or oxide layers on the surface to avoid poor welding.
8.Keep out of reach of children.
9.Unauthorized disassembly of the machine is not allowed and is unsafe.
10.Do not use the product in inflammable, explosive or water-spray environment.

SW01 series performance comparison

Capacitor Energy Storage Precison Welding Machine Model	 HT-SW01A	 HT-SW01A+	 HT-SW01B	 HT-SW01D
73SA Down pressing rocker arm	X	√	√	√
Standard welding pen model	70A Separate	70BN Integrated	70BN Integrated	73B Integrated
Pure nickel THK (Welding pen)	⩽0.2mm	⩽0.25mm	⩽0.25mm	⩽0.3mm
Nickelage/Stainless steel THK (Welding pen)	⩽0.25~0.3mm	⩽0.3mm	⩽0.3mm	⩽0.4mm
Pulse power	11.6KW(Peak)	11.6KW(Peak)	11.6KW(Peak)	12KW(Peak)
Peak Welding Energy	60J	119J	119J	238J
Pulse time	5ms (MAX)	10ms (MAX)	10ms (MAX)	20ms (MAX)
MT pedal precision spot welding	X	X	√	√
AT auto trigger spot welding	√	√	√	√
Voltage test function	X	√	X	X
Real welding current display	X	X	√	√
Memory Function	X	X	X	√

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