HELTEC BMS **HT-SW01A+**

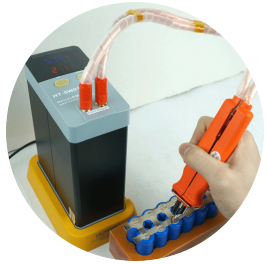
Super Energy-Gathered Pulse Technology

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."AT"automatic welding welding modes help you finish the welding work easily and efficiently.
7.Compatible with 7 series mobile welding pen.
8.The compact aluminum alloy shell can effectively dissipate heat.
9.With 0-199V voltage detection function,detect the voltage value of battery quickly.

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.

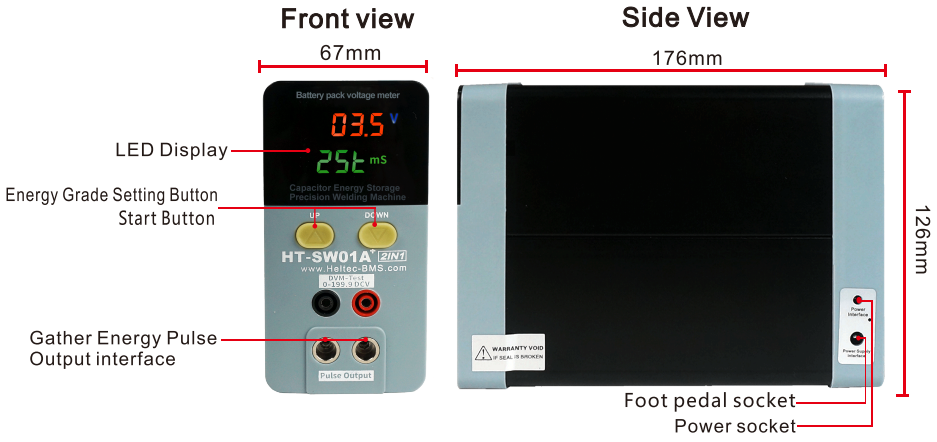
Parameters

Model	HT-SW01A+	Voltage Output	5~5.8V（Peak）
Voltage Input	AC 100-240V 50/60HZ	Peak Welding Energy	119J
Pulse Power	11.6KW（Peak）	Trigger Mode	AT
Energy Grade	0-99T	Welding Mode	Rocker arm press down spot welding Mobile pen spot welding
Pulse Time	0~10mS	Preload Delay	20~50mS
Adapter Parameter	15V2A(Peak)	Charging Time	20~30min
Dimension	67(L)x176(W)x126(H)mm	Weight	2KG
Measuring range	0-199V		

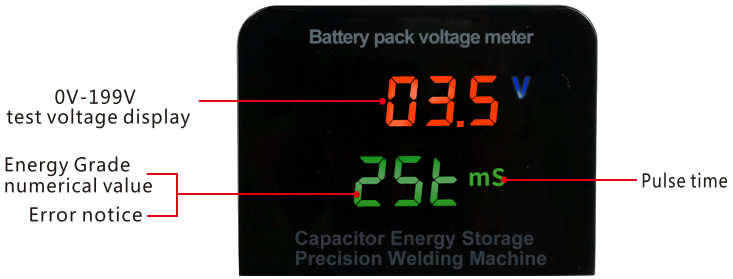
Packing List

①Main machine×1pc
②Power adapter×1pc
③Voltage Test line×1pair
④Mobile welding pen(HB-70BN)×1pair
⑤ Rocker arm press down spot welding arm(73SA)×1pc
⑥Hexagon spanner×1pc
⑦Base×1pc
⑧Welding pin on the welding arm(73SA)×2pairs
⑨Welding pin on the welding pen (HB-70BN)×1pair
⑩Manual & Warranty Card×1pc

Product Diagram



Control panel sketch map





0V-199V test voltage display



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

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.



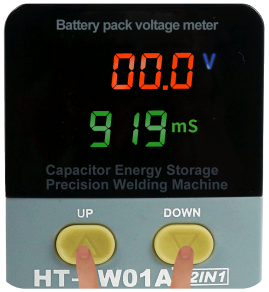
②Plug the adapter into an AC 100-240 volt wall socket to charge the machine.



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 20~30 minutes, and wait for the voltage to rise between 5.2~5.8V before spot welding.

2.Introduction of the LED display



1. Power on / off——
Press the"▲/▼"button at the same time to turn on or turn off the spot welder.When the machine is not in use, please unplug the power adapter from the wall socket.



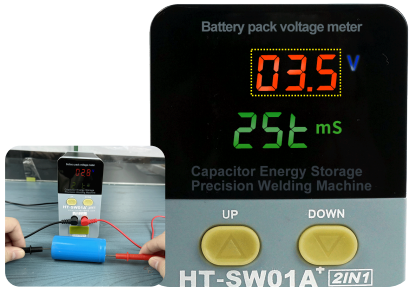
2.After the machine is powered on for the first time, the LED will show "CH" intermittently and the real-time voltage value of the internal capacitor. The spot welder is being charged.



3.When the voltage is between 5.2 and 5.8V, the machine will display 25ms,that is ready for use.



4.Set energy grade——
Press the"▲"or"▼" button to Increase or decrease energy grade.



5.Connect the voltage test line and test battery,can be displayed battery voltage.

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	0.3mm
Pure nickel	06-08t	10-11t	12-15t	20-25t	60-70t
Nickel plated steel	03-04t	07-08t	10-12t	15-18t	40-50t

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

5.Operation steps

Spot welding :

AT mode--automatic welding(no foot pedal control, 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.

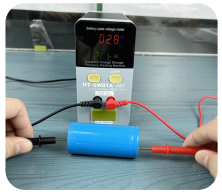


3.Check the spots' reliability. Finish spot welding.

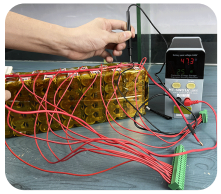
Test voltage:



Connect the voltage test line correct.



Test 32650 battery voltage



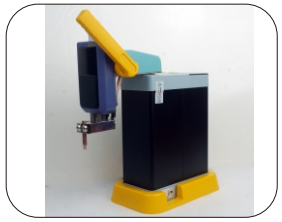
Test 13S battery pack voltage

Main Machine and Base Display

Installation mode:

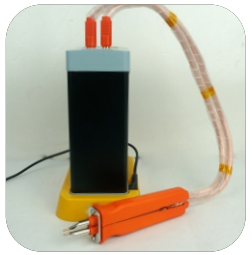


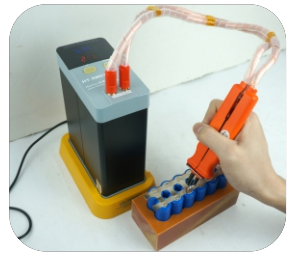
The welder's back should be inserted into the base vertically.



Welder with 73SA welding arm positioned in base.

Usage scenario:





Attach welder to base to prevent movement during welding process.

Installation diagram of handle controlled welding head

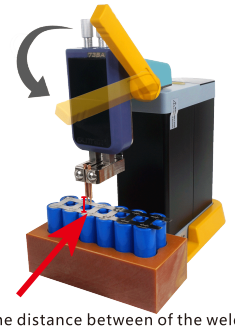
Standard with 73SA downward welding head



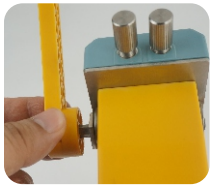
- Pressure adjustment
- Downward spot welding
- Easy to operate

☑ Spot welding is very solid

☑ Improve the welding quality and efficiency



The distance between of the welding needle and battery is 4-9mm.



1.Insert the welding head into the corresponding socket.



2.Remove the lid.



3.Tighten the screws. (Keep copper wires separate)



4.Close the lid.

Welding head parameter(73SA)

Handle Torque	950g	Handle Operation Angle	0-50°
Welding Arm Operating Distance	15mm	Pressure Adjustment Range	1~9.5N
Peak Welding Energy	119J	Welding Arm Width	44mm

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	√

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.MT mode is recommended for new users of SW01A+ welding machine, the pressure you give shouldn't be too heavy or too light. Find the proper pressure for your project, and then you can try AT mode.

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 20~30 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.

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