

# BATTERY SPOT WELDER

Capacitor Energy Storage Precision Welding Machine

USS-BSW00005



## User Manual

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Thank you for choosing the U.S. Solid battery spot welder.

Please check the package firstly to make sure it is not damaged in transit before use. For questions, please contact us at [service@ussolid.com](mailto:service@ussolid.com) for help.

To ensure the best user experience, we recommend reading the user manual thoroughly and keeping it for future reference.

## **Product Introduction**

- The newly designed U.S. Solid USS-BSW00005 high-frequency inversion battery spot welder equips with the two super capacitors for energy storage and power supply for pulse welding. Unlike traditional AC transformer spot welders, it is more portable and it does not cause any interference to the electric circuit, eliminating tripping problems.
- The low-consumption super energy-gathered millisecond pulse technology maximizes the pulse energy output in millisecond-level time, the welding spot is excellent and no damage to the battery.
- 11.6KW/2000A Super Welding Output - Supporting welding the 0.2mm pure nickel to the 18650 lithium battery.
- LED Display Screen & Controlling Buttons - Real-time capacitor voltage, power grade and actual welding current parameters are monitored. Convenient parameter adjustments can be made by pressing the buttons.
- 'AT/MT' Two Welding Modes - 'AT' automatic mode for quick welding and 'MT' foot pedal controlling mode for beginners or precise welding.
- Multiple welding pen accessories are available for different welding requirements.

(Please notice that the package only contains the default 70B welding pen & 73S handle-push welding arm for 18650 lithium battery pack welding, additional purchase required for other-types welding pen)

## **Usage Scenarios**

Lithium battery pack quick building & maintenance for electric appliances, electric vehicles, etc.

Especially designed for the 18650 lithium battery pack quickly building.

Circuit Board/Hardware/Electronic Components/Lead Wire spot welding.

(Tips: Different welding pen accessories additional purchase required, the package only includes the 70B welding pen & 73S handle-push welding arm).

Widely used for the common metal welding like stainless steel, iron, nickel, titanium, molybdenum, etc.

## **Welding Reference Table**

Material	Thickness	Surface	Power Grade
pure nickel	0.05 mm	stainless steel	15-20 t
pure nickel	0.1 mm	stainless steel	30-35 t
pure nickel	0.15 mm	stainless steel	60-65 t
pure nickel	0.2 mm	stainless steel	85-90 t
nickel-plated steel	0.05 mm	stainless steel	5-10 t
nickel-plated steel	0.1 mm	stainless steel	20-25 t
nickel-plated steel	0.15 mm	stainless steel	50-55 t
nickel-plated steel	0.2 mm	stainless steel	75-80 t

### Notes:

*The table is for reference only, the actual welding effect also influenced by the material size, surface flatness, oxidation condition, etc.*

**Product Parameters**

Model	USS-BSW00005	Welding Mode	AT/MT
Machine Input	AC 100-240 V 50/60 Hz	Power Adjustment	0-99 t (0.1ms/t)
Charging Current	4.5 A	Pulse Delay Time	20 ms
Charging Time	≤ 20 mins	Welding Thickness of Nickel Plated	0.05-0.3 mm
Max Welding Voltage	5.8 V	Welding Thickness of Pure Nickel	0.05-0.2 mm
Max Welding Current	2000 A	Product Size	6.9x4.9x2.6 inches
Max Welding Power	11.6 KW	Product Weight	6.4 lbs
Max Welding Energy	116 J	Package Size	8.9x8.1x7.7 inches
Pulse Time	10 ms	Package Weight	7.2 lbs

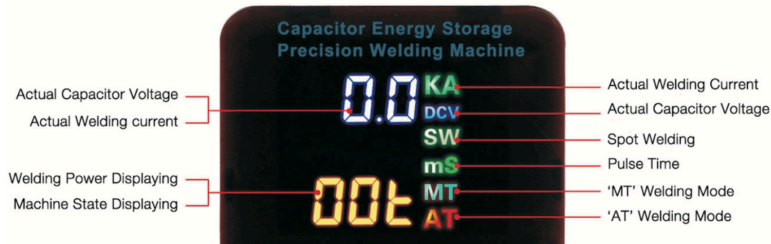
**Package List**

- Main Machine x 1 pc
- Power Adapter x 1 pc
- Foot Pedal Switch x 1 pc
- 70B Integrated-style Welding Pen x 1 pc
- 73S Handle-push Welding Arm x 1 pc
- Replacement Welding Pins for 70B x 1 pair
- Replacement Welding Pins for 73S x 2 pairs
- Nickel Strip Samples x 100 pcs

## Product Diagram



## Panel Diagram



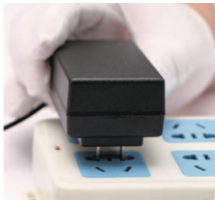
	Actual Capacitor Voltage - 5.8 V		Power Grade – 10 t Welding Mode – MT
	Actual Welding Current - 800 A		'E-1' Error - Check the Troubleshooting Table
	Power Grade – 10 t Welding Mode – AT		'E-2' Error - Check the Troubleshooting Table

## How To Use

### Usage Diagram



1. Plug in the power adapter on the back side of machine.



2. Connect to the right power supply.



3. Press the 'UP/DOWN' two buttons at the same time to switch on the machine and charging. The screen will display the 'CH' signal and capacitor voltage.



4. Plug in the 70B welding pen or install the 73S welding arm according to specific welding requirements.



5. When 'CH' signal disappears and capacitor voltage reaches 5.4-5.8V, machine is ready for work.



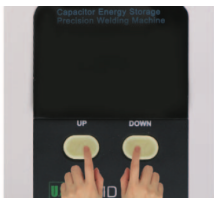
6. Press the 'UP/DOWN' buttons to adjust the machine power grade, the adjustment range is 0-99t.



7. The default welding mode is 'AT' - Automatic Welding Mode.



8. Plug in the foot pedal switch and keep it stepped, press the 'UP/DOWN' two buttons at the same time to restart the machine to switch to the 'MT' welding mode - Foot Pedal Controlling Mode.



9. Press the 'UP/DOWN' two buttons at the same time to switch off the machine when not using and unplug it.



10. When not using the machine for a long time, unplug the machine and place it at an upside-down position, red light will be on at 'power interface' position, the machine will discharge automatically. (Tips: When shaking the machine, the auto-discharging triggering device will make normal sounds)



## 'AT' Mode - Automatic Welding Mode



Set the 'AT' welding mode



Press two welding electrodes on welding pieces with an enough and uniform pressure, welding pulse will be released automatically after a 20ms delay.



Check the welding effect

## 'MT' Mode - Foot Pedal Switch Controlling Mode



Set the 'MT' welding mode



Plug in the foot pedal switch



Press two welding electrodes on welding pieces with an enough and uniform pressure, step on the foot pedal switch, welding pulse is released after a short delay.



Check the welding effect

### Tips:

1. *The 70B welding pen and 73S welding arm are all compatible with 'AT/MT' two welding modes.*
2. *Put enough pressure on two welding electrodes to get the welding pieces and welding surface fully contacted, otherwise the welding pieces will be penetrated and cause a bad welding effect.*
3. *'MT' welding mode is recommended for new user, after getting familiar with the welding operation(such as welding power setting and welding pressure adjustment), you can switch to the 'AT' automatic welding mode to finish welding work quickly and efficiently.*
4. *In 'AT' quick welding mode, please often check the welding effect to avoid bad welding.*

## **70B Integrated-style Welding Pen**



### **70B Welding Pen Parameters**

Welding Pen Size	150x40x22 mm	Wire Sectional Area	16 mm <sup>2</sup>
Welding Pins Distance	2-7 mm	Welding Pins Size	Φ1.5mm x 7mm
Total Length	580 mm	Welding Current	2000 A

## **Replacement of 70B Welding Pins**



The welding pins are easy to replace

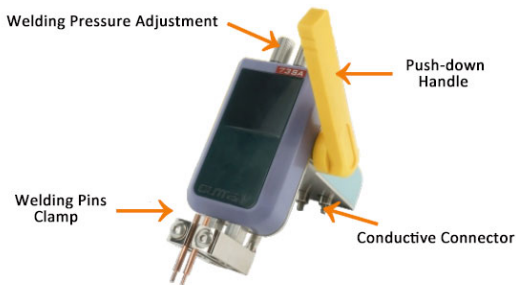


Pull out the used pins



Knock in the new pins

## 73S Handle-push Welding Arm



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

## Installation of 73S welding arm



1. Install the handle
2. Unscrew the lid
3. Take down the lid
4. Tighten the retaining screws
5. Recover the lid

## Replacement of 73S' welding pins



1. Unscrew the welding head
2. Take down the used pins
3. Replace with new welding pins
4. Screw the welding head

(Tips: regular replacement of welding pins are needed for optimal welding effects)

## **Usage Notices**

- Precious metals like gold, silver and jewelry cannot be welded.
- Never contact the two welding electrodes of welding pen.
- Never contact the battery positive and negative terminals at the same time.
- Do not set the power grade too high, otherwise will cause large sparks and penetrate the battery.
- Welding sparks may occur, wear goggles and keep a safe distance.
- Charge the machine firstly for first time use and wait the capacitor voltage reaches 5.8 V.  
*(The machine has been discharged to the lowest voltage before leaving the factory for safety transportation).*
- ‘AT’ automatic mode is for quick welding and ‘MT’ foot pedal controlling mode is for the beginner or precise welding. The welding effect needs to be checked in AT quick welding mode to avoid the neglected bad welding spots.
- Apply enough and uniform pressure on two welding electrodes to get the welding pieces and welding surface fully contacted for optimal welding effect.  
*(Apply different pressure according to different materials and thickness).*
- Keep the welding pieces and welding surface clean and flat to avoid poor welding effect.
- Clean or replace the welding electrodes regularly for optimal welding effect.
- Twist and tighten the welding electrodes firmly for best conductivity.
- Do not take down the plastic shell of the welding pen.
- Lubricating oil can be smeared on the welding electrodes to prevent oxidation.
- The package list only contains the default 70B welding pen & 73S handle-push welding arm for 18650 lithium battery pack welding, additional purchase required for other-types welding pen.
- Only use the welding accessories(welding pen, electrodes) from U.S. Solid.
- Only charge the machine with the original power cord.
- Keep the machine plugged in for working.
- Normal meter cannot measure the actual instant welding current(pulse).
- Shut down the machine when not using and unplug it.
- Do not take part and modify the machine personally, doing so may cause danger.
- Do not use the machine if lacking of related knowledge and experience.
- Do not use in inflammable, explosive dangerous environments.
- Keep out of reach of children.

**Troubleshooting Table**

Problems	Possible Causes	Solutions
Error Type - 'E01' (welding signal triggered but no welding current)	welding material not supported	check the material
	welding material too thick	check the thickness
	the welding pen electrodes, welding pieces and welding surface are not clean, stains or oxides exist;	clean the welding components or replace new welding electrodes
	internal circuit board broken (machine short circuit: contact the welding pen two electrodes; contact the battery positive and negative terminals at the same time)	replace new circuit board
Error Type - 'E02' (welding signal continuously triggered in short time)	step on the pedal switch always or too fast	step by interval time
	the pedal switch is broken(stuck)	repair or replace new pedal switch
Weak Welding	low capacitor voltage	charge and wait the voltage reaches 5.8V
	set the power grade too low	turn up the power grade
	welding pen or its welding electrodes not plugged in firmly	check the connection
Large Welding Spark	not enough pressure applied on the welding pieces	apply enough pressure
	exceed the pulse delayed time	quicken the welding operation
Welding Spots Not Uniform	not uniform pressure applied on the welding pieces	apply uniform pressure
Battery Penetrated	set the power grade too high	turn down the power grade

For troubles cannot solved by this table or needing of replacement accessories, please contact us at [service@ussolid.com](mailto:service@ussolid.com) for help.

Please provide the pictures or video of the broken machine if possible, which will help us analyze and solve the problems.

## **One Year Limited Warranty**

U.S. Solid warrants your battery spot welder to be free from defects in materials or workmanship under normal use and service for one year from the date of original purchase. All defective devices under normal use will be repaired or replaced for free. All parts, except for consumable welding accessories, will be covered under this warranty.

This warranty shall not apply to any U.S. Solid battery spot welder that:

- is defective due to misuse, neglect or accident;
- is used for a purpose that the device is not designed for;
- has been repaired or altered in a way that adversely affect its performance and reliability;
- is serviced by unauthorized parties;
- Is intended for commercial or professional use.

This warranty is only applicable to the original purchaser.

U.S. Solid would not assume or authorize any person to assume any other liability in connection with its product. No responsibility is assumed for any consequential damages that may result from the use of a U.S. Solid product, nor for damages due to accident, abuse, lack of care, affixing of unauthorized attachment, loss of parts or subjecting this unit to any but the specified voltage.

If your product is broken and meets the warranty requirements, please email us to [service@ussolid.com](mailto:service@ussolid.com) with the original receipt showing the purchase date and the description of the problem for customer service.

Please note should any return or replacement be incurred, transportation and packing costs are the responsibility of the customer.

This warranty gives you specific legal rights, you may have other rights that may vary from state to state.

***For More High-quality Products From U.S. Solid, Please Visit***

***[www.ussolid.com](http://www.ussolid.com)***

## **Contact Info**

Website: [www.ussolid.com](http://www.ussolid.com).

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