

Splicer Master



Before using this series of devices
Please read and understand this user manual carefully

OPTICAL FIBER SPLICER USER MANUAL

Splicer Master



Version record

Version number	time	Change description
V1.00	2017-05-24	Document creation.
V1.01	2017-06-14	Improve some parameters.
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A FIRST-TIER CITY, WELDING THE WORLD.

Chapter 1 Overview

Thank you for choosing TFN optical Fiber welding machine! This manual will introduce the features and use methods of the company's optical fiber welding machine in detail

The machine adopts innovative design means and exquisite manufacturing technology to bring users unprecedented welding experience, the new technical means greatly shorten the welding and heat shrinkage time; Micron parallel clamping, high precision alignment algorithm of spindle and advanced contour vision technology ensure the accuracy of welding loss estimation. Lightweight fuselage and fine design, strong shell make it can meet a variety of harsh environment work requirements; The application of the touch screen and the fully automatic welding procedure bring great convenience to the user's operation.



This manual describes the performance features, operation methods, maintenance methods, and precautions of the optical fiber splicer in detail to help you get familiar with the operation methods and operation points of the optical fiber splicer as soon as possible

Note: It is recommended that all users read this user manual before using the optical fiber splicer.

Chapter 2 Technical parameters

Technical parameter	content
Applicable fiber type	SM(TU-T G.652&G.657), MMITU-T G.651), DS(ITU-T G.653), NZDS(TU-T G.655)
Applicable fiber diameter	0.25-0.3mm /Indoor Cable
Optical fiber placement and cutting length	Coating layer: 0.125-1mm/ Cutting length: 8-16mm
Welding mode	Preset 41 welding modes, can store 100 modes
Typical welding loss	SM: 0.02 dB/MM: 0.01 dB/DS: 0.04 dB/NZDS: 0.04 dB/g. 657:0.02 dB note according to the ITU - T standard measurement to cut method
Return loss	≥ 60 dB
Illumination	3 high-power LED white lights
Welding time	SM FAST mode: 6 seconds
Estimation of welding loss	There are
Weld length	20-60mm
Heating bath	Preset 5 kinds of heat shrink bushing 20mm, 30mm, 40mm, 50mm, 60mm; Can store 50 heating modes
Heating time	Heating time: 20-900s Optional/Typical heating time: 15-30 seconds
Welding machine results storage	1000 latest stored records
Tensile test	1.5 to 2.0 N
reveal	90° dual camera, 4.3-inch 480*272 color high-resolution capacitive touch screen
Optical fiber amplification and display	X,Y,X/Y Double click 500X
Power Input	AC 100-240V, DC 12-15V
Battery capacity	Battery capacity 5200mah
Heating frequency	Typical welding heating times are greater than 280 times
Mode of operation	Buttons and touch screen
Adaptive discharge	Automatic adjustment according to air pressure and external temperature
Electrode life	Discharge 3000 times (with special cleaner can extend the trial life of more than 20%)
port	Mini USB 2.0
Fiber alignment	Fine alignment, core alignment
weight	Main machine (with enclosure) 1.9KG, (without enclosure) 1.6KG; Battery weight 0.38KG
Main engine size	With enclosure :140w*165L*148Hmm, without enclosure: 130w*165L*138Hmm
Operating condition	Altitude: 0-5000 meters, relative humidity 0-95%, -10~50°C, maximum wind speed of 15m/s
Storage condition	Relative humidity 0-95%,-40~80°C, battery storage: -20~30°C long-term storage

Chapter 3 Installation

3.1 Security Warnings

The welding machine is designed for the splicing of quartz glass fiber and cannot be used for any other purpose. The welding machine is a precision instrument and should be carried and used with great care and always comply with the following safety regulations and specifications:

- Do not use the welding machine where there is a risk of explosion, do not expose the welding machine to open flame, electric shock, rain or wet environment;
- Do not touch the welding electrode at any time when the machine is turned on.
- Wear protective glasses during optical fiber preparation and otherwise optical fiber debris into the eyes, skin or swallowed may cause very serious consequences.
- Please do not disassemble and assemble any parts of the welding machine except the parts stated in this manual that are allowed to be replaced by the user. Replacement parts and internal adjustment can only be carried out by the manufacturer or its authorized maintenance personnel;
- When the welding opportunity to the following situations, please immediately take out the battery; Smoke, odor, abnormal sound or abnormal heating; - Liquid and foreign matter enter the welding machine; - Machine is damaged or broken;

If you encounter these faults, contact the maintenance center immediately. If measures are not taken in time and it is left in the fault state, it may cause the machine to be completely scrapped or even cause fire, human injury or death;

- Use only the manufacturer's standard battery. Improper use of AC power may cause smoke, electric shock, device damage, or even fire, personal injury, or death.
- Please use only the manufacturer's specific battery adapter. Do not place heavy objects on the power cable, heat the power cable, or change the power cable. Improper or damaged power cables may cause smoke, electric shock, device damage, or even fire, personal injury, or death.
- When charging the battery, do not stack the battery and adapter together to avoid fire or danger.

Note: The welding machine can only use professional electrode rods. To replace the electrode rods, please select the replacement electrode option in system maintenance, or the welding machine power supply must be turned off in advance.

3.2 Battery Precautions

- If the welding machine is not used for more than 1 month, it is recommended that the battery pack be separated from the machine for storage
- It is prohibited to transport or store batteries together with metal objects;
- Do not charge or discharge in low or high temperature environment for a long time to avoid reducing battery life or accidents;
- Do not use metal objects such as wires to short-circuit the battery terminals.
- It is forbidden to short-circuit the positive or negative electrode of the battery with the aluminum layer of the outer packaging aluminum-plastic film material of the battery cell;
- It is forbidden to disassemble the battery or put it into the fire to avoid the explosion of the battery;
- The battery is a consumable and has a certain service life. When checking the battery power, the battery indicator light is all on, but the working time of the welding machine is very short, please replace the battery;
- After charging the battery pack with the power adapter, disconnect the power adapter in time. If the fully charged battery is in the adapter power supply state for a long time, it will cause great damage to the battery and unexpected things may occur.
- Do not heat the battery or throw it into water;
- Do not charge the battery near a fire or in a very hot environment;
- Do not place batteries in microwave ovens or high pressure containers;
- Do not use or place the battery at high temperatures (such as strong sunlight or very hot cars) for a long time, otherwise it will cause the battery to overheat, fire or function decline and reduce life;

- Do not use damaged batteries. Batteries that leak electrolyte or emit electrolyte odor should be kept away from fire sources to avoid battery fire or explosion. If the electrolyte leaks and comes into contact with skin or other parts of the body, rinse immediately with water. If the electrolyte comes into contact with eyes, rinse immediately with water and go to the nearest place

3.3 Maintenance and Appearance Protection

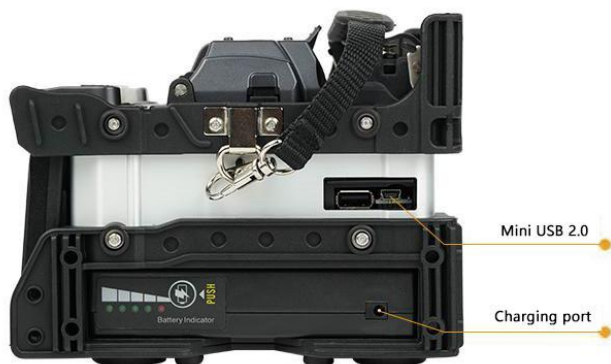
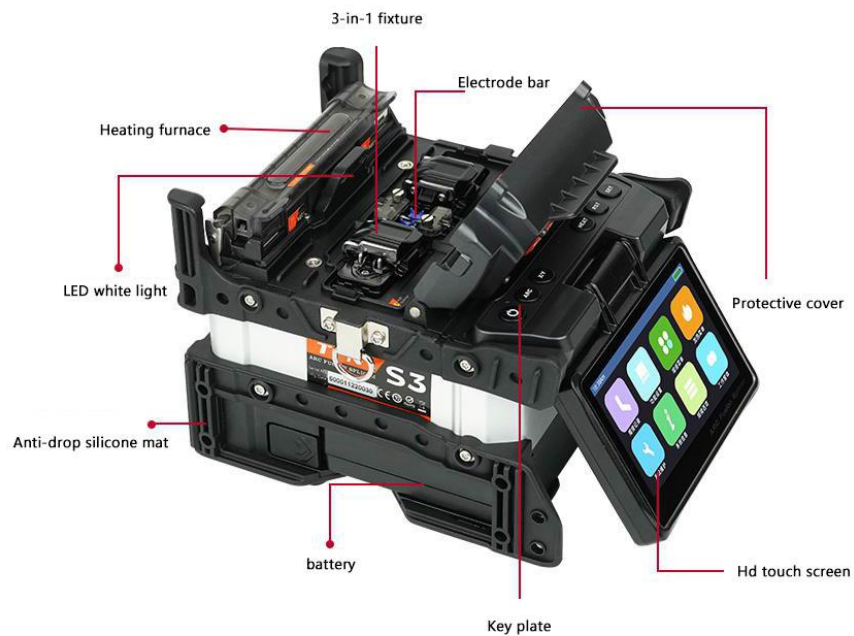
- Regularly check the V-shaped groove, clean the V-shaped groove, avoid using hard objects to clean the V-shaped groove and electrode rod;
- Use a dry cloth to remove dust and dirt from the welding machine;
- If the outside of the welding machine is dirty, avoid using acetone, paint thinner, clean any part of the welding machine can use a soft cloth immersed in diluted neutral cleaning solution, and clean after the liquid is twisted out. Use a dry cloth to dry the welding machine, but do not use furniture polish, or other cleaners.

3.4 Transportation and Storage

- Do not store the welding machine in a dusty or humid environment. Otherwise, it may cause electric shock, reduce the performance of the welding machine or even damage the equipment;
- Keep the minimum humidity, relative humidity should be less than 95%;
- When the welding machine is transported from a cold environment to a warm environment, try to adopt a gradual heating method, otherwise the inside of the instrument will produce condensation, which will have an adverse effect on the instrument.
- The welding machine has been accurately adjusted and calibrated, please try to avoid its strong impact and vibration, long distance transportation please use a special carrying box;
- Avoid direct sunlight or overheating environment;
- In order to maintain the performance of the welding machine, it is recommended to maintain the whole machine once a year;
- Welding machine must be repaired and debugging by professional and technical personnel, if there is a problem, please contact the manufacturer.

Chapter 4 Basic operations

4.1 Overview of Appearance



4.2 Power Supply Mode

The following is the battery installation diagram



4.3 Starting the System

Press the power button on the operation panel of the welding machine, wait for the welding machine to start and enter the display [ready] work screen.




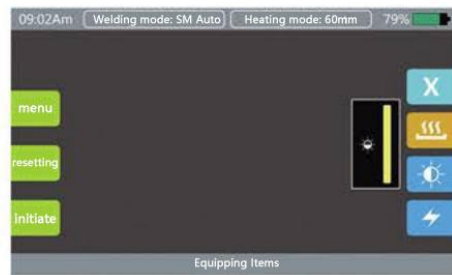
4.4 Adjusting the display Position

Adjust the display to the best Angle for easy operation.



4.5 Adjust the brightness of the LCD backlight

On the initial screen, press  to adjust the LCD backlight brightness until it is clear.



4.6 Steps for Preparing Optical Fibers

Before fiber welding, three steps are required to prepare the fiber:

- Coating stripping

Peel off the sheath to leave at least 50mm of coating (the loose sheath fiber is the same as the tight sheath fiber), and use a stripper to remove the coating layer with a length of 30 to 40mm

- Use cotton paper dampened with alcohol to clean the optical fiber.

- Optical fiber cutting

Use high-precision cutting tools to cut the optical fiber. In order to ensure the quality of welding, high-precision cutting knives should be used for cutting, such as A9 series optical fiber cutting knives, and strictly control the length of optical fiber cutting (as shown on the right).

Note: Remember to put the heat shrink sleeve on the fiber pretreatment.

[Important] Ensure that the bare fiber and its cut sides are not dirty.

Avoid placing optical fibers on dirty surfaces;

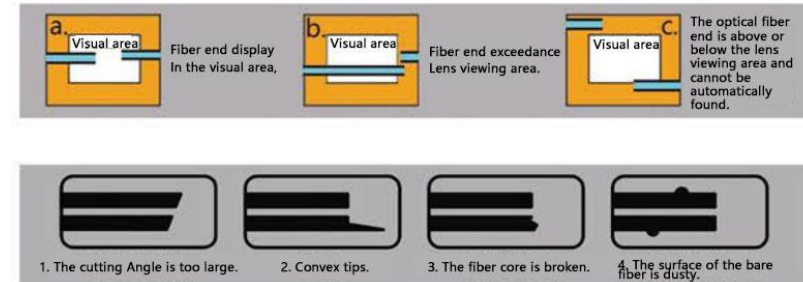
Avoid shaking the optical fiber in the air;

Check whether the V-shaped groove and pressure hammer are clean. If they are not clean, clean them with a cotton swab dipped in alcohol.



4.7 Automatic Check of Optical Fibers

After the optical fiber is loaded into the welding machine, start the welding machine, the welding machine will automatically do the discharge cleaning before welding, after the discharge cleaning, check the cutting Angle of each optical fiber and the quality of the cutting end face, if the measured cutting Angle of the optical fiber is greater than the set limit value, or check the end face of the optical fiber has burr, then the buzzer alarm, while the display will pop up a prompt box to prompt the operator.



4.8 Welding Procedure

① Turn on the welding machine power source, and when only the SM fiber (ITU-T G.652) is fused, the [SM Mode] mode is recommended:

② Confirm the welding and heating Mode. When welding different types of optical fibers, the [Auto Mode] mode is recommended, but the welding speed will be slower;

③ Clean the optical fiber coating or tight sleeve



Insert the optical fiber into the heat shrink protective sleeve;

④ Peel the optical fiber to clean the optical fiber, use pure alcohol with a concentration of more than 99%



Ensure that the coating residue or other dirt is removed from the stripped optical fiber

⑤ Put the optical fiber into the fixture



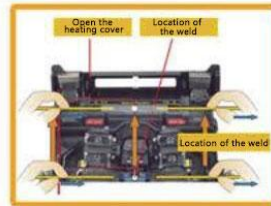
Do not let the cut end of the optical fiber come into contact with any object or be contaminated

- ⑤ Place the electrode rod between the edge of the V-groove and the central position where the electrode rod is connected at the two poles
- ⑥ Cover the windproof cover to begin automatic welding. The LCD screen can be viewed during welding



Note: Do not slide the fiber along the V-shaped slot. The fiber should be cut beyond the V-shaped slot, but not beyond the rod tip.

- 7 Take out the fused optical fiber and put the heat shrink tube in the middle of the heating furnace. Move the optical fiber so that the fusion point is located in the center of the heat shrink sleeve. Cover the heating furnace cover and start heating



⑧ Complete

Note: When there is a large welding loss or a large change in the altitude of the environment, the [stable electrode] and [discharge correction] must be performed before welding.

4.9 Screen Optical fiber amplification function

The user can double click the screen to realize the optical fiber amplification function, and then the LCD screen can observe the weld mark to determine whether the welding state is good.



Chapter 5 Welding mode

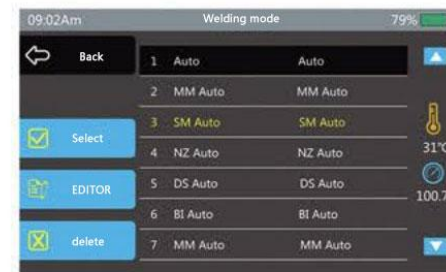
The device has a clear and easy to use mode selection menu. Each welding mode in the menu defines the welding current, welding time, and various important parameters of welding, it is necessary to choose the appropriate welding mode, usually the optical fiber combination welding mode has a pre-defined value, which can make the optimization of many uncommon optical fiber combination parameters and the modification of the welding mode easy.

5.1 Displays the current welding mode

The current welding mode will be displayed at the top of the interface



5.2 Selecting a Welding Mode



Click to enter [Welding Menu]

Enter [Welding mode], select the desired welding mode and press the select button (the yellow font is the current welding mode).

View the selected welding mode Select [Back] To return to the initial screen

5.3 - Welding parameters of the general welding process

argument	Description
template	A list of welding modes stored in the welding machine data, according to the welding mode selected by the user. The selected items stored in the database will be copied to the user editable area.
name	Weld mode questions, up to 7 characters.
annotation	A detailed explanation of the weld pattern in up to 15 characters. Displayed in the Select Weld Mode menu
Tension test	If [tensile test] is set to [NO], then after welding is complete, open the storm cover, Or when the [SET] button is pressed, a tension test is performed.
Loss estimation	Loss estimation is the estimate of connection loss. The splicer calculates the loss of connection point according to the optical fiber image. There is a certain deviation from the real value, and the algorithm to estimate the loss is based on the single-mode fiber model. The transmission wavelength is 1.31um, The estimated value has good reference value in the case of good welding state, but it can not be used as the basis of project acceptance.
Cutting Angle value	An error message is displayed when the cutting Angle of either side of the optical fiber exceeds the selected cutting Angle limit.
Interval	Set the distance between the left and right fiber ends during alignment and premelt discharge.
Amount of overlap	Set the amount of overlap of the fiber advance, if the premelt [premelt discharge intensity] is low, relatively little [overlap amount] is recommended, When the [premelt discharge intensity] is large, a relatively large [overlap amount] is recommended.
Clean discharge time	Clean discharge can burn off the tiny dust on the surface of the fiber in a very small discharge cycle, The discharge time can be changed by this parameter.
Clean discharge intensity	Set the clean discharge arc strength.
Premelt discharge intensity	Set the pre-discharge intensity for the period from the start of discharge to the start of fiber propulsion. If the [premelt discharge intensity] setting is too low, it will occur in the case of a relatively poor optical fiber cutting Angle The axial deviation of the optical fiber. If the premelt discharge intensity is set too high, the optical fiber end face will melt excessively, and the welding loss will increase.
Premelt discharge time	Set the discharge time for the period from start to start fiber propulsion, A long [premelt discharge time] and a high [premelt discharge intensity] will lead to the same result.
Welding discharge intensity	Set the intensity of the arc discharge.
Welding discharge time	Set the arc discharge time.

Chapter 6 Welding Options



Go to the Weld Options menu.
Click on the selected item to
modify the parameters.

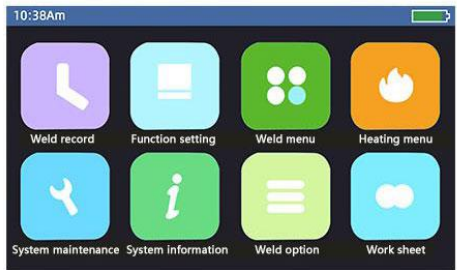
name	argument	Description
Weld option	Automatic start	If the automatic start is set to [ON], then the welding will automatically begin as soon as the storm cover is closed, and the fiber should be prepared in advance and put into the welding machine.
	Time-out one	If [Pause One] is set to [ON], the welding process will stop when the fiber is advanced to the completion of the spacing setting, and the value of the cutting Angle can be seen.
	Time-out two	If [Pause two] is set to [ON], the operation is paused after the fiber alignment is complete.
	Secondary alignment	After a longer period of [pause 2] state, alignment may fail, so after [pause 2] state, The splicer performs the realignment function, which is set to [OFF] to prevent the realignment function. When the axial displacement of the fused optical fiber is caused by pause two, it is recommended to use the manual welding mode. Instead of using the realignment setting, the function is set to [OFF].
	Fault neglect	Ignore weld errors, such as cutting angles that exceed threshold values, and weld can continue when this function is set to [ON].
	Tension test	If [tensile test] is set to [ON], then open the storm cover after welding is complete. Pull test can be performed.
Fiber Image setup	Fiber pitch setting	Sets how the optical fiber is displayed on the screen during welding
	Time-out one	
	alignment	
	Time-out two	
	Electric discharge	
	estimate	

Chapter 7 Heating Mode

There are 50 kinds of heating modes in the flame receiver, 5 kinds of heating modes by default, and other users can customize and add. Select the heating mode that best matches the heat shrink tube used, and for each heat shrink tube, the user edits the corresponding parameters in a custom position.

7.1 Selecting a Heating Mode

Select [Heating Menu] to enter the [Heating Mode] menu.



Go to [Heating Menu]



Enter [Heating mode], select the required heating mode, and press the select button (the yellow font is the current heating mode).



View the selected heating mode
Select [Back] To return to the
initial screen

7.2 Editing the Heating Mode

The heating conditions stored in the heating mode can be edited and modified.



Enter [Heating mode] Select the heating mode you want to edit, select [Edit], enter [Edit heating mode]



Select the parameters you want to edit and then select [Confirm] after editing.

7.3 Deleting a Heating Mode



Enter [Heating mode] Select the heating mode you want to delete, select [Delete] prompt box appears, select [Confirm]

argument	Description
name	The name of the heating mode
Heating type	According to user needs, you can choose [Full] (full heating) or [Part] partial heating
Heating temperature	Set heating temperature
Heating time	Set the time from the beginning to the end of heating

Chapter 8 System Maintenance

8.1 Dust Check

The welding machine uses imaging to detect dust and dirt on the optical fiber, camera, and objective lens that may affect the observation results and may lead to poor welding results. This function can check the dust on the optical channel and determine whether it will affect the welding quality.

Operation procedure

- Select Dust Check in System Maintenance
- If an optical fiber is placed in the welding machine, remove the optical fiber and press the [SET] key to start the dust inspection.
- If dust is found during the detection, the screen will indicate [execution failed] and show the location of the dust, clean the objective, and do [dust check] again until the screen says [execution completed].

Note: If the dust is still present after cleaning the objective lens, please contact the agent

8.2 Motor Calibration

The motor has been adjusted before it leaves the factory. Of course, these Settings can change for various reasons, and this function automatically calibrates the speed of the four motors. Operation procedure

- Under System Maintenance, select Motor Calibration.
- Prepare the optical fiber and put it into the welding machine, press [SET] key.
- The speed of all motors will be automatically calibrated and a prompt will be displayed when it is complete.

8.3 Stabilizing Electrodes

When the external environment changes suddenly, the discharge strength will sometimes become unstable, resulting in increased welding losses, especially when the welding machine from a low altitude process, need to do several tests until the screen shows [execution is complete]. When the area is moved to a high altitude, it takes a certain amount of time to stabilize the discharge intensity, in this case, the welding machine can accelerate the stable discharge intensity by stabilizing the electrode

Operation procedure

- Select [Stable Electrode] in [System Maintenance].
- Put the prepared optical fiber into the welding machine.
- After pressing the SET key, the welding machine will automatically stabilize the electrode according to the following process:
 - (i) Repeat the discharge 5 times to determine the approximate electrode position.
 - (ii) Rapid welding of optical fibers.
 - (iii) Perform 16 consecutive stabilizing electrode accurate measurement of electrode position.

8.4 Discharge Correction

Atmospheric conditions such as temperature, humidity, and air pressure are always changing, which makes the temperature of the discharge constantly change. The machine is equipped with temperature and pressure sensors, which can feed back the parameters of the external environment to the control system to adjust the discharge intensity and maintain a stable state. However, changes in discharge intensity due to wear of the motor and adhesion of optical fiber debris cannot be automatically corrected, and the position of the discharge center sometimes moves to the left or right. In this case, the optical fiber weld position will be shifted relative to the discharge center, and a discharge correction will need to be performed to solve these problems.

Note: The discharge correction changes the internal condition parameters, and the discharge intensity value in the welding mode does not change.

Operation procedure

- Under [System Maintenance], select [Discharge correction] to display the discharge correction screen.
 - Prepare the optical fiber and put it into the welding machine. Press [SET] to start the discharge correction until the prompt is complete. Otherwise, re-cut the optical fiber for discharge correction
- To exit the discharge correction page.

Note: Discharge correction requires several repeated operations to be successful.

8.5 Electrode Setting

When the number of discharges exceeds the electrode life, the welding loss will become larger, and the strength after welding will be reduced, and the electrode will wear due to use, so it must be regularly removed according to the degree of accumulation of oxides. Set electrode use reminder, it is recommended to replace a new electrode every 2000 welding to ensure high quality welding.

When the number of electrode discharges reaches 3000 times, it will prompt [Please replace the electrode rod] after starting up.

If you need to replace the electrode rod, press [Replace electrode] in [Electrode Settings] or directly turn off the welding machine to replace it.

Remove the old electrode, loosen the screw that holds the electrode cap, and remove the old electrode rod.

Be careful not to pull out the wiring when replacing the electrode rod.

Clean the new electrode rod with a clean gauze or dust-free cloth dampened with alcohol, then install it in the welding machine, put the electrode cover back into the welding machine, and tighten the screws.

It is strongly recommended that after replacing the electrode, the electrode should be stabilized and the discharge correction (the specific operation method will be explained below), otherwise it is impossible to ensure a better welding loss and welding strength.



Chapter 9 Other functions and applications

9.1 Data Storage

A maximum of 1000 welding results can be stored in the welding machine, and the stored data content is displayed differently according to the welding mode

Weld record

The storage results stored in the welding machine can be displayed.

Enter the [Weld record] menu and select [Show Weld record] to view.

Clear the weld record

Select [Clear weld record] option, Enter the machine password, select [Enter], you can clear all weld record.

Unstore data

If the user does not want to store the weld record, select [ON] from the Record Store option.

9.2 System Settings

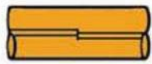


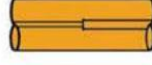





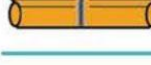
argument	Description
buzzer	Set the buzzer switch
Temperature unit	Set the temperature display mode
Automatic heating	If [NO] is selected; When the optical fiber is placed into the heating tank, the heating tank automatically executes the heating program.
Language	Select the type of action prompt language
calendar	Setting the system time
cipher	To access some special menus, the initial password set by the factory is [000000]. If you forget your password after changing it, please contact your agent.
Electrode use reminder	When the electrode discharge exceeds the set number of times, a prompt box will pop up when opening the welding machine [Please replace the electrode]. It is recommended that this parameter be set to [2000].
Electrode use warning	When the electrode discharge exceeds the set number of times, The prompt box [Electrode must be replaced] will be displayed when the weld is opened. You are advised to set this parameter to [3000].
Automatic shutdown display	Display within 180 seconds (user can change) without any operation the display will automatically turn off to prevent a large loss of battery power, when the display is turned off, the LED indicator beside the startup key flashes. Press any key to turn on the display.
Automatic machine shutdown	The machine will automatically shut down without any operation within 30 minutes (user can change) to prevent the loss of battery power.

9.3 System Information

Select System Information, and the following information is displayed.

argument	Description
Software version	Display software version
Discharge statistics	Displays the total number of discharges
manufacturer	Display manufacturer
Serial number	Display the serial number of the welding machine
Model number	Display machine type

Chapter 10 Excessive welding loss and solutions

phenomenon	name	reason	solution
	Core axial deviation	The V-shaped slot or optical fiber press is dusty	Clean V-shaped slots and optical fiber press hammers
	The core Angle is wrong	The V-shaped slot or optical fiber press is dusty Fiber end quality is poor	Clean V-shaped slots and optical fiber press hammers Check whether the optical fiber cutter works properly
	Core bending	Fiber end quality is poor The premelt discharge intensity is low Or the premelt discharge time is short	Check whether the optical fiber cutter works properly Increase [premelt discharge intensity] and/or [discharge time]
	Mode field diameter mismatch	Discharge intensity too low	Increase [discharge intensity] and/or [discharge time]
	Dust burning	Fiber end quality is poor Cleaning Optical fibers Or the dust is not removed when cleaning the discharge	Check whether the optical fiber cutter works properly Completely remove fiber or increase [clean discharge time]
	bubble	Fiber end quality is poor The premelt discharge intensity is low Or the premelt discharge time is short	Check whether the optical fiber cutter works properly Increase [premelt discharge intensity] and/or [discharge time]
	Fiber separation	The fiber advance is too small High premelt discharge intensity Or the premelt discharge time is long	Do [motor calibration] maintenance Reduce [premelt discharge intensity] and/or [discharge time]
	Too thick	The optical fiber is advancing too much	Reduce [overlap] and do [motor calibration] maintenance
	careful	The discharge intensity is inappropriate Some discharge parameters are inappropriate	Discharge correction Adjust [premelt discharge intensity] [premelt discharge time] or increase [overlap amount]
	Welding line	Some discharge parameters are not suitable	Adjust [premelt discharge intensity] [premelt discharge time] or [amount of overlap]

Note: When different fibers (different diameters) or multi-mode fibers are fused, sometimes a vertical line will be generated at the connection point, which is called the [flame connection], which does not affect the welding quality (welding loss and welding strength).

Chapter 11 Common Error Messages and Solutions

If an error message appears on the screen during the use of the welding machine, please refer to the following table. If the problem can not be solved, it may be a failure of the welding machine, please contact the dealer.

Error message	reason	solution
The left/right optical fiber is placed	The end of the fiber transcends the center line of the electrode	Press RESET and insert the optical fiber again so that the end of the optical fiber is between the electrode center line and the edge of the V-shaped slot
Propulsive motor travel exceeded	The fiber is not properly positioned at the bottom of the V-groove causing the fiber to deviate beyond the travel range of the motor	Press RESET and place the optical fiber correctly
The left and right fiber ends contact	[Overlap] The setting is too small	Adjust the Overlap Amount parameter
	Motor not calibrated	Perform [motor calibration] maintenance
Optical fiber positioning failure	The optical fiber is incorrectly placed at the bottom of the V-shaped slot	Press the RESET key to reposition the optical fiber so that it is properly positioned at the bottom of the V-shaped slot
	The end of the optical fiber is placed within the viewing Angle of the camera	Check the position of the optical fiber on the optical fiber cutting knife
	The cutting length (the bare fiber part) is too short	Check cut length
The Angle between the end faces is too large	The fiber end is of poor quality	Re-prepare the optical fiber. If the problem persists, check whether the blade of the cutting knife is worn. If it is worn, rotate the blade to a new side
	[Cutting Angle limit] is too small	Increase [cutting Angle limit] to a suitable value (2.0° in standard time)
The core Angle is too large	[core Angle limit] too small	Increase [cutting Angle limit] to a suitable value (1.0° in standard time)
	The V-shaped slot or optical fiber press hammer has dust or dirt	Clean the V-shaped slot and optical fiber press hammer and re-prepare the optical fiber to place the optical fiber
Fiber is too dirty	There is dust or dirt on the optical fiber surface	Refabricated fiber
	There's dirt on the lens	Perform [dust check] after cleaning the lens, clean the objective when there is dirt
	[Clean discharge time] is too short	Set Clean discharge time to 180ms

Chapter 12 Common faults and solutions

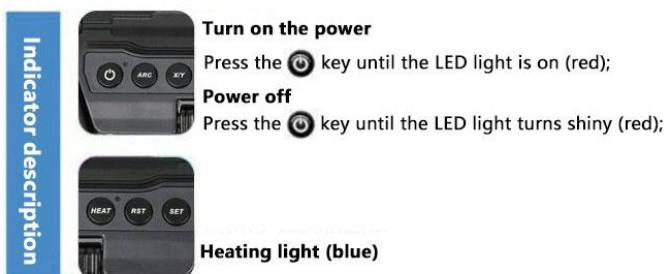
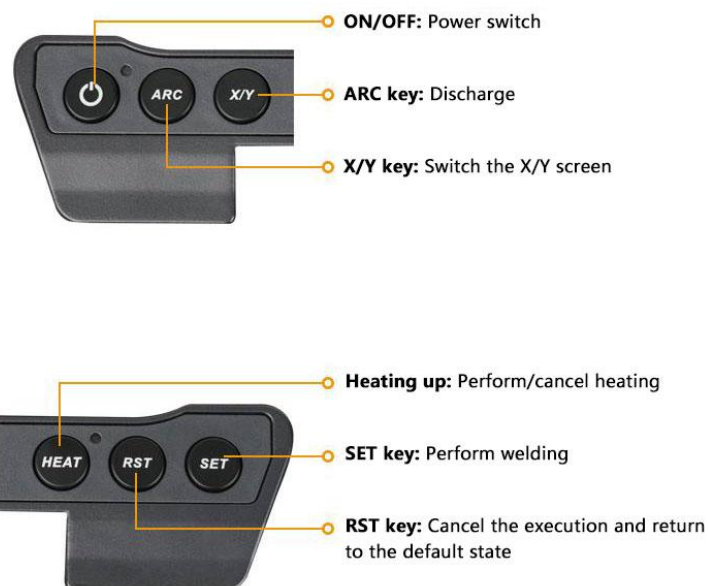
Common faults and solutions, the following content gives some solutions to common faults, for user reference when the user can not solve the situation, please contact the agent

Fault phenomenon	solution
Pressing the ON/OFF key will not shut down the machine	Press and hold the ON/OFF key until the LED flashes, release the key, and weld the machine
A fully charged battery cannot be fused multiple times	When the memory effect is reduced or the battery is stored for a long time, the power should be completely discharged, and then the battery should be recharged
	The battery has expired. Replace the battery Use batteries at excessively low temperatures
The welding loss is too large	Clean the V-shaped slot with an optical fiber press hammer
	Replace electrode rod, discharge correction, and stabilize electrode The cutting Angle, discharge condition and cutting degree of the fiber will affect the welding loss
Display suddenly shuts down	The welding machine will automatically shut down the display after no operation within the automatic shutdown time set by the machine (180 seconds by default), and then press any key to restore the normal working state of the welding machine
The welding machine suddenly shut down	The welding machine will automatically shut down after no operation within the automatic shutdown time set by the machine (30 minutes by default)
An optical fiber error was detected in AUTO mode. Procedure	AUTO mode is only applicable to standard SM,MM,NZ fibers when fusing special fibers, AUTO mode may not be correctly recognized
The estimated welding loss is inconsistent with the actual loss	The estimated welding loss is a calculated value and can only be used as a reference
	The optical parts of the welding machine need to be cleaned
The heat shrink tubing is not fully contracted	Extended heating time
How to unheat	If you want to stop heating during the heating process, press the HEAT key and the heating LED will go out after you press it
The heat shrink tube contracted and stuck to the heating tank	Remove the heat shrink tubing with a thin cotton swab or soft stick
Forgot password	Please contact your agent
The discharge intensity did not change after discharge correction	The discharge correction changes the internal condition parameters, and the discharge intensity value in the welding mode does not change
Forgot to put fiber in while performing some maintenance function that requires putting fiber in	At this time, pressing the return button is invalid, you need to open the windproof cover, and put the cut optical fiber into the welding machine. Press the [SET] key to continue, or press RESET

- ★ The company's product performance and indicators are constantly improving, if there are changes, anger without notice.
- ★ If there is any discrepancy in the pictures in this manual, it is mainly in real objects.

Attachment: Quick instructions

Key description



How do I charge the battery



- AC input range: AC100-240V, 50-60Hz
- Do not stack the battery onto the power adapter while charging
- Make sure the power saving function is turned on when using the battery

How to check the battery level



Cleaning before welding

V-groove



Use a cotton swab dampened with alcohol to clean the bottom of the V-shaped slot

Use a clean cotton swab to wipe away excess alcohol

Use a prepared section of optical fiber to clean the foreign matter in the tank

Optical fiber cutter



Clean elastic cutting mat

Clean the rubber anvil head

Clean the blade surface

Optical fiber press hammer



When the lens surface is not clean, please clean it in time

Lens

Precautions when cleaning

- Do not touch the tip of the electrode rod
- Only use 99% or higher purity alcohol to clean

Attached: Quick guide

Rod replacement

When the **Need to replace electrode** message is displayed or the tip cap of the electrode rod is damaged, **replace the electrode rod**

Do [Replace electrode] in the maintenance menu

Use a screwdriver to replace a new pair of electrode rods

Unscrew and remove rod guard



Remove the old electrode rod



Cover the rod guard and tighten the screws

Install the new electrode rod

● Insert the prepared optical fiber ● execution

● Discharge correction

Common weld defects and error messages

Error message	reason	solution
The left or right optical fiber is incorrectly placed	The fiber end extends beyond the electrode center line	Press RESET and insert the optical fiber again so that the end of the optical fiber is between the electrode center line and the edge of the V-shaped slot
Propulsion motor out of stroke	The optical fiber is not properly placed at the bottom of the V-groove, causing the optical fiber to deviate beyond the travel range of the motor	Press RESET and place the optical fiber correctly
The left and right fiber ends contact	[Overlap amount] Set too small motor is not calibrated	Adjust the Overlap Amount parameter. Perform [motor calibration] maintenance
Optical fiber positioning failure	The optical fiber is incorrectly placed at the bottom of the V-shaped slot, and the optical fiber is not placed within the visual range of the camera. The cut length (the bare optical fiber) is too short	Press the RESET key to reposition the optical fiber so that it is properly positioned at the bottom of the V-shaped slot. Check the position of the peeled optical fiber on the optical fiber cutting knife, and check the cutting length
Fiber is too dirty	There is dust or other dirt on the surface of the optical fiber Dust or other dirt on the mirror [Clean discharge] time is too short	Reprepare fiber Perform [dust check] after cleaning the lens, clean the objective when there is dirt Set [Clean discharge time] to 180ms
The Angle between the end faces is too large	The fiber end is of poor quality [Cutting Angle limit] Setting is too small	Prepare the optical fiber again. If the problem persists, check whether the optical fiber cutting blade is worn. If it is worn, rotate the blade to a new side Increase [cutting Angle limit] to a suitable value (standard 3.0°)
The core Angle is too large	[Core Angle limit] Setting is too small Dust or dirt is detected in the V-shaped slot or optical fiber press	Increase [core Angle limit] to a suitable value (standard 1.0°) Clean the V-shaped slot and optical fiber press hammer and re-prepare it to place the optical fiber

Welding procedure

Turn on the welding machine

- ④ If only the SM fiber (ITU-T G.652.) is fused, the SM Mode is recommended

Confirm welding and heating patterns

- ④ When fusing different types of optical fibers, the Auto Mode is recommended, but the fusing speed is slower

Clean the fiber coating or tight bushing

- ④

Insert the optical fiber into the heat shrink protective sleeve

- ④

Stripped fiber

- ④

Cleaning Optical fibers

- ④

Place the optical fiber into the fixture

- ④

Cutting optical fiber

- ④

Close the storm cover and begin welding

- ④

The LCD screen can be viewed during welding

- ④

Take out the fused optical fiber

- ④

Place the heat shrink tube in the middle of the heating furnace

- ④

Move the fiber so that the fusion point is located in the center of the heat shrink tube

- ④

Cover the heater and start heating

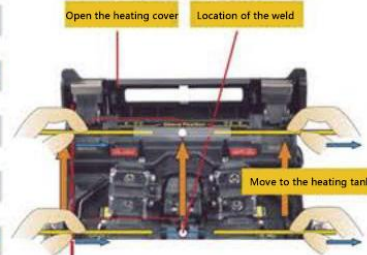
- ④

complete



- Ensure that the coating residue or other dirt is removed from the stripped optical fiber
- Use pure alcohol with a concentration of more than 99%

Do not let the cut end of the optical fiber touch any object or become contaminated



Look out When there is a large welding loss or the altitude of the environment changes greatly, [stabilizing electrode] and [discharge correction] must be performed before welding.

