

AI-12/9/8C/7C

Touchscreen version

OPTICAL FIBER FUSION SPLICER USER'S MANUAL

OPTICAL FIBER FUSION SPLICER

2026.01

CATALOGUE

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SAFETY REQUIREMENTS

At any stage of operation on the optical fiber fusion splicer, you must take the following general safety precautions. If don't take these warnings and precautions or not comply with the warnings which described in this manual, would violate the fusion splicer design, manufacture and use of safety standards. Our company does not assume any responsibility for the consequences of breaching these requirements for users caused!

● Operation environment and Power

Fusion splicer operation, storage environment and working power requirements

Operating temperature: 0~+40℃ Limit temperature: -10℃~+50℃
Operating humidity: 95%RH or less (no condensation) Maximum wind speed: 15m/s
Storage conditions:-20℃~+60℃ (no condensation)

Before turning on the power, please make sure that the power supply can match its voltage,and that all safety measures are taken.

- Do not use the fusion splicer in explosive environments
- Do not use the fusion splicer in the presence of flammable gases or fumes
- Do not attempt to disassemble any of the components of fusion splicer

In addition to the statements in this manual to allow user-replaceable parts, please do not attempt to disassemble any of the components of fusion splicer. Replacement parts and internal adjustments can only be commissioned by authorized service personnel.

WARNINGS/PRECAUTIONS

● AC/DC Adapter

AC/DC Power Adapter must strictly meet the follow Requirement
DC Output: Voltage 13.5V; Current 4.8A. Polarity: Center Is Positive.
AC Power Supply: Voltage 100-240V 50/60HZ.

ATTENTION: if use the wrong DC Power adapter will burn out the machine. If use the wrong AC Power Supply will burn out the DC power adapter and broken the power supply adapter.

● Internal Lithium Battery

There is a lithium-ion battery cells in the fusion splicer, if use else batteries may damage the fusion splicer and jeopardize personal safety.

For safety sake, lithium battery pack can not be disassembled to prevent short circuits; do not crash Battery, do not let the battery close to fire or extreme heat to avoid lithium battery explosion.Violation of the above operation may cause lithium battery explosion, endangering the personal safety of users.

▲ Notice:

- 1.When the battery is placed for a long time, it is easy to enter into the dormancy state. At this time, the capacity is lower than the normal value, and the service time is also shortened. However, the battery can be activated and its normal capacity can be restored after only 2-3 normal charging and discharging cycles. Lithium batteries have little memory effect and can be recharged at any time.
- 2.Lithium batteries exist self-discharge phenomenon, a long time of unused batteries will be in the state of low voltage because of self-discharge.A long period of low voltage will damage the internal structure of the battery and shorten the battery life.Therefore, unused batteries should be charged at least once a month, pay attention to the display of 2 or 3 bars of electricity can be charged, should not be full;In daily use, try to charge in the battery display more than one grid, do not run out of power to charge
- 3.Do not use the machine for a long time, please take out the battery and store it separately. The temperature range of long-term storage (storage time over 6 months) of the battery is 0~40. The temperature range of short-term battery

WARNINGS/PRECAUTIONS

storage (storage time less than or equal to 6 months) is: -20~60℃.

4. In order to ensure the safety of charging, the charging temperature range of lithium battery inside the welding machine is 0~40℃.

5. If the battery charging is abnormal or the battery display is abnormal, you can try to activate the battery manually. For specific operation, please see: button combination function -- three to activate the battery

● Operation On Optical Fiber Fusion Splicer

When below situation happens on fusion splicer, Please turn off the fusion splicer Immediately and unplug the power adapter from the power input, Otherwise it will cause the fusion splicer may not work properly or can not be repaired and other serious consequences.

- 》 **Liquid, foreign matter into the inside of the fiber fusion splicer. There is a protective structure inside the machine. A small amount of fiber debris will not affect the use, but please try to be careful not to fall in.**
- 》 **fiber fusion splicer is subjected to strong vibration and impact**

There is no need to maintain the fiber fusion splicer internal parts, do not remove the fiber fusion splicer. In the electrode discharge process of fiber fusion splicer, the voltage between the two electrode rod is up to several dry volts, do not touch the electrode, otherwise will cause the fiber fusion splicer damage or personal injury and other serious consequences.

▲ Notice:

1. Optical fiber fusion splicer is used for welding quartz glass fiber, please do not use this instrument for other purposes. Please read this manual carefully before use.
2. Pay attention to clean the V groove and lens in the process of use (to clean V groove, you can use an art knife to draw back and forth along the fiber groove, and then brush with a brush); Clean dust after use.
3. When the optical fiber fusion splicer moves from the low temperature environment to the high temperature environment, try to take the gradual heating mode, otherwise the instrument will produce condensation, which has an adverse impact on the instrument.
4. optical fiber fusion splicer is a calibrated precision instrument, please try to avoid strong vibration and impact. Special

WARNINGS/PRECAUTIONS

carry case should be used for storage, and suitable cushioning case should be added outside the carry case for long-distance transportation.

● LCD display screen

1. The LCD screen of the fiber splicer should not be touched with sharp objects or subjected to strong impacts.
2. Do not drop organic solvents or dirty sundries on the LCD screen, such as acetone, oil, antifreeze, ointment, etc., otherwise it may lead to abnormal LCD display.
3. Can use silken cloth or soft fabric to wipe clean liquid crystal screen.
4. There may be noise on the screen when the fusing machine windproof cover is opened or not put in the optical fiber. These are not LCD fault, is a normal phenomenon

CHAPTER I DEVICE INTRODUCTION

● Operation Key Combination Function

The fusion splicer machine is mainly used For fiber optic splicing, the machine can continue to splice drop table fiber, jumper wire and a cladding diameter of 80um-150um, single mode,multimode and other quartz-based dispersion shifted fiber. The operation process should be taken to keep clean free subjected to strong vibration or shock.



AI-7series



AI-8C



AI-9



AI-12

○ RESET

Press the reset key to reset the propulsion motor, adjustable motor, and focusing motor to their original. When the Reset button light is on, it indicates the reset is in process. If it turns off within 5 seconds automatically that means the reset is successful, otherwise the reset is failed.

X/Y X, Y DISPLAY TOGGLE KEY

X, Y display toggle

▶ CONTINUE

When the pause function is on, please press the button to continue the next operation

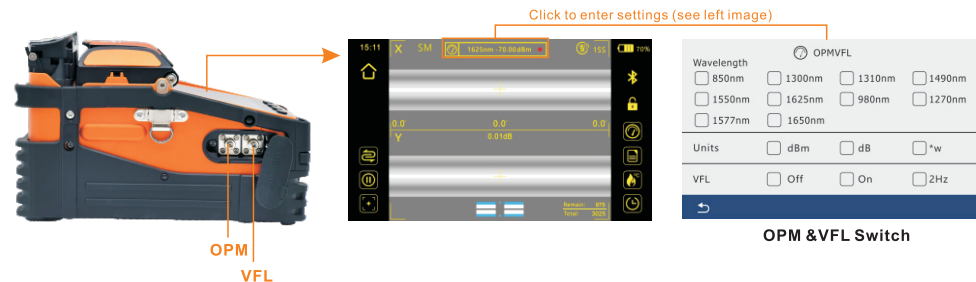
⏻ Machine power switch

Long press to turn on or off the machine

Optical Power Meter & Visual Fault Locator Module

★ This feature is only available on AI-9/AI-12.

Effectively measure connection losses, verify continuity, and help evaluate fiber link transmission quality



Switch between ten states

Wavelength: 850nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm, 980nm, 1270nm, 1577nm, 1650nm



Switch between three states

Power: 15mW, 2Hz flashing and steady on mode



UNIT Switch test unit

dBm/dB/uw Switch between three units, power display range:-50+26dbm. Error display Error

λ Switch wavelength

850nm, 1300nm, 1310nm, 1490nm, 1550nm, 1625nm, 980nm, 1270nm, 1577nm, 1650nm switching between ten states

650 Visual fault locator

Constantly light up / Flashing/Off/switching between three states

⏻ Power Meter And Optical Modules Switch

Turn On/off Power Meter And Optical Modules

CHARGING



Charging channel ①



Charging channel ②

Direct charging (without removing the battery)

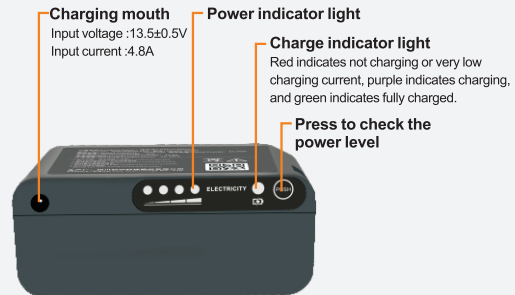


Charging channel ③

Charging the battery separately



Press to pop up the battery



HEATING OVEN

Activate preheating function in winter



The fiber fusion is successful. At the same time as opening the windproof cover, the heating tank automatically starts preheating for 6 seconds.

Heating part compatible with SC fiber



SC Fiber: Push up / Ordinary fiber: Push down

Heating part automatic lid closing



Cooling rack Expandable and closable

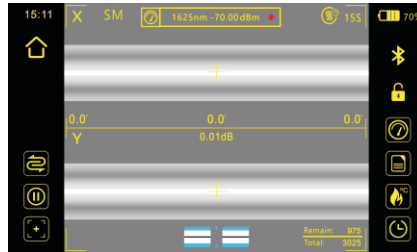


OPTICAL FIBER FUSION SPLICER HOME MENU

Press and hold the power button for 2 seconds to enter the fusion splicer's main page.

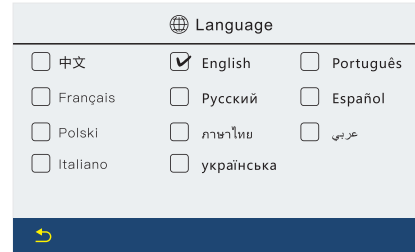


Scan the QR code to download the "SignalFire2" mobile app. The app allows you to set up and manage the fusion splicer. Main functions include: fusion splicer parameter and function settings, cloud storage and export of fusion splicing records, electrode activation, system firmware updates, fusion splicer intelligent management, and contacting after-sales service. (See page 23 for details)



1. On the fusion splicer's main page, open the windproof cover or click the box containing the QR code to enter the fusion splicing interface. In the splicing interface: Clicking the icon allows you to toggle the function on/off or access quick settings. (See page 14 for icon function descriptions)

OPTICAL FIBER FUSION SPLICER HOME MENU



2. On the fusion splicer's main page, click "Language." 11 languages are available, including Chinese, English, French, and Spanish. After selecting your desired language (marked with a "✓"), click the bottom left corner and return to the homepage for the changes to take effect.

No	Time	loss
000007	2025-11-12 14:26	0.00db
000006	2025-11-12 14:25	0.01db
000005	2025-11-12 14:24	0.01db
000004	2025-11-12 14:22	0.00db
000003	2025-11-12 14:22	0.02db
000002	2025-11-12 14:21	0.01db
000001	2025-11-12 14:20	0.00db

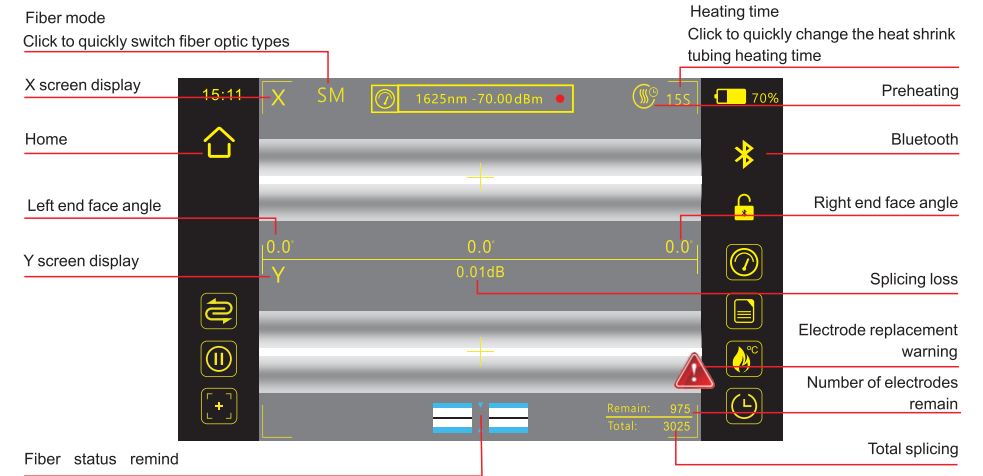
3. Fusion Records: You can view detailed records of each fusion splice. The bottom right corner has up and down arrows for page navigation. The machine's maximum storage capacity is 3500 records. To avoid data overwriting and loss, please connect to the app and export the data promptly.

FUSION SPLICER HOME MENU









Fiber Optic Type	Select the appropriate fiber type based on your needs. The fusion splicer will automatically switch preset parameters. After switching fiber types, it is recommended to perform discharge correction for optimal fusion splicing results.
Automatic Power Off	Timed power-off when not in use. The setting range is 1-10 minutes. " <input checked="" type="checkbox"/> " indicates it is active.
Heating Time	Heat shrink tubing heating time.
Heater Preheat	The heater will preheat for 6 seconds each time the cover is opened after each fusion splice to shorten the heating time.
Auto Focus	Automatically adjusts the focus for better fiber core identification. When enabled, core alignment and splicing accuracy are higher, but the splicing speed is slightly slower. When disabled, the automatic alignment function still works normally, and the splicing speed is faster, but the splicing accuracy is reduced.
Activate Battery	If the lithium battery is low on power, it may cause the battery to enter dormancy, fail to charge, or have an abnormal battery level (not fully charged). Press " Enter " to activate the battery and restore its function.
Self-Test	Click " Enter " to enter the fusion splicer's self-test, which checks the hardware status and helps after-sales personnel diagnose machine faults.
Cutting Angle Detection Cutting Face Detection	A smaller angle and a finer cut face ensure a better fusion weld, but the fusion splicer is more likely to report errors indicating unacceptable cut faces, requiring more skilled operators. These two settings can be configured but cannot be disabled.
Tension Test	After splicing is complete, the spliced joint will be automatically stretched to test its strength.

FUSION SPLICE INTERFACE ICONS

6. Fusion Splicing Interface Icon Functions



▼ FUSION SPLICE INTERFACE ICONS

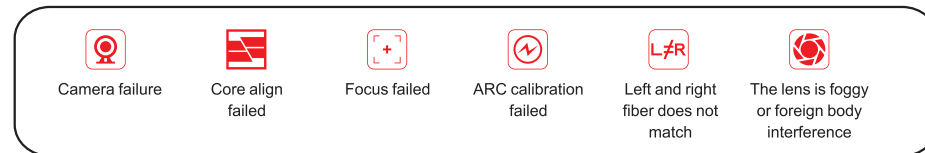
Icon	Name	Function
	Home	Click to return to the main startup page
	Operating Mode	This icon cannot be clicked directly; it can only be modified through the menu or the app, including "Normal Mode, Discharge Correction, Dust Detection, and Factory Mode".
	Fiber Splicing Pause	When enabled, after completing steps such as fiber pushing, dust removal, and core alignment, the process pauses; you need to press the "▶" button to resume discharge fusion splicing. This function is also called "step-by-step fusion splicing".
	Auto Focus	When enabled, it automatically adjusts the fiber image clarity, identifies the fiber core, and improves splicing quality, but the splicing speed will slow down.
	OPM & VFL	When enabled, it effectively measures spliced point loss, verifies continuity, and helps evaluate the transmission quality of the fiber optic link.
	Fusion Splicing Record	Displays splicing time, loss, and other records, the same as the "Record" function on the homepage.
	Preheating	When activated, the heater preheats for 6 seconds after each fusion spliced when the windproof cover is opened, effectively shortening the heating time of the heat shrink tubing.
	Automatic Shutdown	After activation, the device automatically shuts down if there is no operation within a preset time. The preset time can be adjusted via the settings function on the homepage, ranging from 1 to 10 minutes.




▼ SMART PROMPTS FOR FUSION SPLICE INTERFACE

Intelligent prompt and fiber state prompt solution





I. Intelligent prompt

The red icon which shows in the left bottom of the LCD Screen.

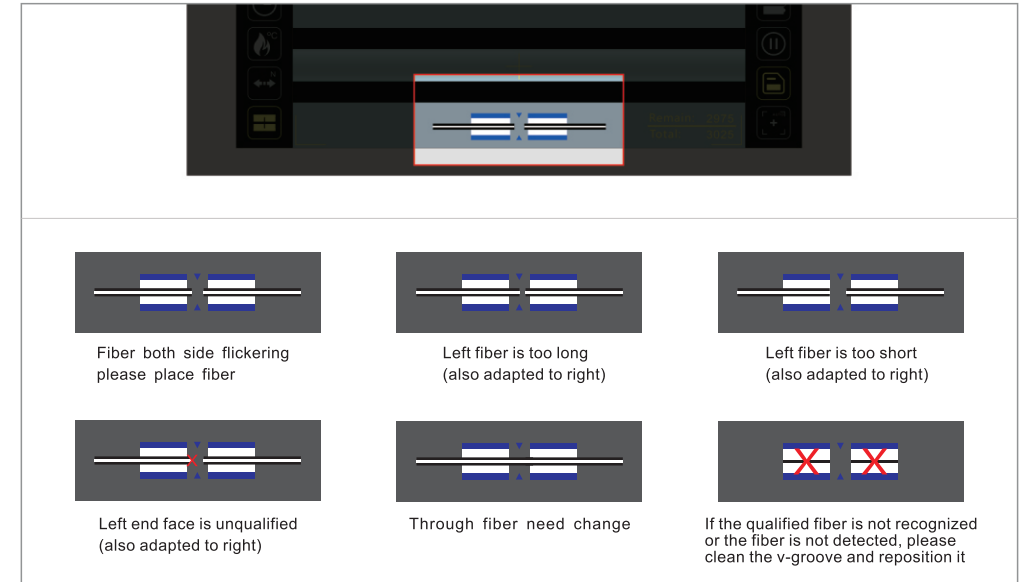


- **Camera fault**  : first clean the objective lens, If the fault still exists, please do a machine self-checking of the splicer to confirm whether the camera fails (please refer to daily maintenance for specific operation).
- **Align failure**  : check the fiber cleaved is that in good condition, such as the coating layer is not clean, too bad cutting surface, too many burrs; Then clean the V-grooves with knife, clean the outside lens which below the electrode and press the reset key. Note: dust in the lens may also cause failure of core alignment, so dust should be cleaned (this please contact after sales service).
- **Focus failure**  : only happened when autofocus function is turned on, usually shows the fiber image is too blurry. Solution: check the fiber cleaved is that in good condition, clean the V grooves and outside lens, press the reset key; turn off the autofocus function manually(see daily maintenance for details). If the fault continues, do a machine self-checking to check whether "focusing motor" error. Note: dust in the lens may also cause failure of core alignment, so dust should be cleaned (this please contact after sales service).

SMART PROMPTS FOR FUSION SPLICE INTERFACE

- **Arc Discharge failure** : First clean the tip of the electrode and remove debris; Restore the factory Settings from App "Signalfire2". Restart fiber splicer, Then do the arc calibration. If the fault still have, do a machine self-checking to check whether "HV-Discharge" error.
- **The left and right optical fibers do not match** : the specifications or types of optical fibers on both sides are different, and they need to be replaced with the same specifications or types.This error, can press continue to ignore the key error then force to do fiber fusion. attention: according to the construction specifications of fiber splicer, different specifications and types of fiber cannot be fused, if forced splicing, fusion quality may be affected.
- **Fog or foreign matter on the lens** : check the fiber cleaved is that in good condition and cleaned no dirt on it, and then clean the outside lens;In addition, if the red light failed which in on the electrode, it also will report this. (checking method:Open the electrode cover, and the lights is light up. If not, it is broken and needs to be replaced).
- **Electrode replacement warning** : When electrode splicing times reaches 3800, warning icon will appear, reminding you to prepare a new electrode and be ready to change it.

FIBER OPTIC STATUS PROMPTS



FIBER OPTIC STATUS PROMPTS

II Fiber state prompt

There is an icon shows the fibers on the V-grooves status in the middle of the LCD Screen bottom:
white and blue square means the V-grooves. Black and white long line means optical fiber. Triangle means the electrode tips.
above pictures are what we have show you about the different status of the fiber on the V-grooves.
Attention: fiber end face please put close to the electrode tips but not exceed tips.

● Put the optical fiber on V-grooves

When you open the wind cover and both side fiber icon flickering, that means we need to put the cleaved fiber on the machine V-grooves. when you close the cover, then the icon will change and then a few seconds it will tell you the fiber status as what we show you the pictures above. when you open the wind cover the page still the boot display page, and even you try many times to open and close the cover, the machine doesn't beep and the page doesn't change, then the machine's sensor happened problem. need to check the splicer wind cover left side magnet's magnetism and the correspond position Allen screws on the panel did they are tighten.

● Fiber put too short on V-grooves

The icon show you that fiber end face is in the V-groove and not exceed it, that means the fiber put too short and is not close to the electrode tips. we need put the fiber again and make the fiber end face close to the electrode tips and not exceed the tips. normally the jump fiber may happen this problem because the sleeve will slide and make the fiber not move then the icon remind you this situation. if you meet this problem, please contact our after sales service.

FIBER OPTIC STATUS PROMPTS

● The end face is not acceptable

fiber end face there is a red "X", that means the fiber end face is not acceptable, then we need re-cleave the optical fiber until cleave the fiber have a good end face. if you have try many times and each time show you that the end face is bad, then we need check the cleaver is that we need to adjust it. if the cleave end face is good, but when the pre-discharge make the fiber end face round and the icon remind you, then we need to do an arc calibration to make the pre-discharge lower so that the machine will be back to normal work again. if the machine show the fiber blur, will also make the error icon, and about the fiber display blur, please check daily maintain.

● Failed to recognize fiber or failed to detect fiber

V-grooves icon there is a red "X", that means machine didn't recognize the fiber or the fiber didn't put on the V-grooves. if the optical fiber has put on the V-grooves and the error icon still have, check the fiber has been cleaned and cleaved, then clean the outside lens and the V-grooves, press the reset button(the left first one), if the display shows the fiber is blur, also will make the error icon happen. these you can check in the daily maintain chapter.

KEY COMBINATION FUNCTIONS AND SELF-TEST PAGE

The four function keys at the bottom of the screen, except the basic functions which has been introduced above, there are also some combined functions for daily maintenance of the machine.

1.force upgrade mode: in the shutdown state, press and hold the reset key(the left first one) and the power button, and the machine enters the force upgrade mode.

Usage :In this mode, connect the phone again-Signalfire2,firmware updates are more stable, faster, and can force a firmware refresh.When normal upgrades fail, it's easier to succeed with this feature.

2.Self-check of optical fiber fusion splicer: in the shutdown state, press and hold the continue button(the left second one) and the power button at the same time, and the machine enters the self-check mode.

Usage: When the welding machine is not working normally and the hardware is suspected under problem, it can be confirmed by machine self-checking. For example, fiber align procession is normal, but there is no welding arc, you can check whether the "HV-Discharge" is error.

After entering the self-check, the test time will be displayed at the bottom of the screen. When all the 12 firmwares are self-checked over, if the firmware is under problem then the red font will be displayed, that means the correspond firmware has problem may need to replace it. please contact the after-sales service to deal with it.

The meaning of the 12 self-checking items as following

01 Image processing	Image processing	Report an error,please check again. If the error is still reported, please contact after-sales service
02 Data Rom	Data Rom	
03 Data Ram	Data Ram	
04 Controller	Controller	
05 Motor: PL PR AL AR	Fiber control motor: Push motors and align motors each one pair	report an error,Please contact the after-sales service
06 Focusing Motor: X Y	Focusing motors :2	
07 Camera: X Y	One pair	report an error, first clean up the lens, upgrade the firmware.If the fault persists, Please contact the after-sales service.
08 Camera LED: X Y	Camera LED:two	report an error,Please check whether the red light above the electrode is bright and dim(see electrode replacement for specific operations)If the fault persists, Please contact the after-sales service.

KEY COMBINATION FUNCTIONS AND SELF-TEST PAGE

09 RTC	RTC	Report an error,please check again. If the error is still reported, please contact after-sales service.
10 Battery	battery	unplug the battery and plug the battery again, check whether the battery plug into the machine firmly,check the battery socket is there any rust. if the problem is still there, please contact after-sales service.
11 HV-Discharge	HV-Discharge	check the electrode mount good or not, check the discharge wire connection to the electrode base is that well. if that's all good and the "HV-Discharge" error shows in the self-checking result, please contact after-sales service.
12 Bluetooth	Bluetooth	If error reported, please contact after-sales service.

CHAPTER II: APP SETUP

Software download

China: scan QR code to download APP,Alternatively, search for "Signalfire2" in your phone's built-in app store.

Outside China: Go to Google Play or App Store and search for"Signalfire2 "download Phone App.



Google play



App store



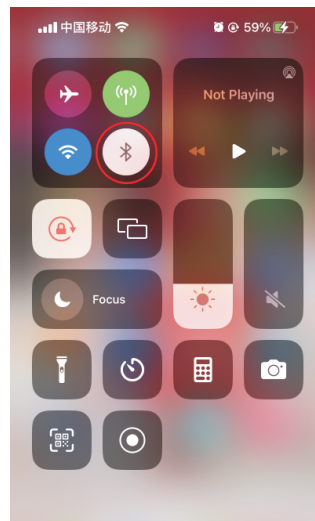
Scan QR code

SOFTWARE BLUETOOTH CONNECTION

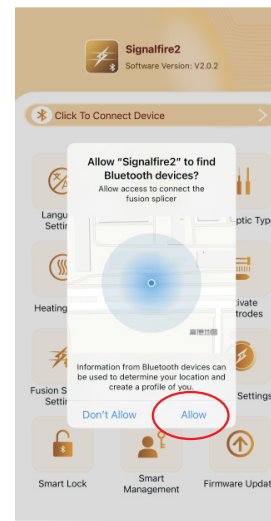
Mobile APP is used for the function setting, fiber fusion record storage, account binding, firmware upgrade. when you use the machine normally, we don't need to connect the mobile app to machine.

Phone settings

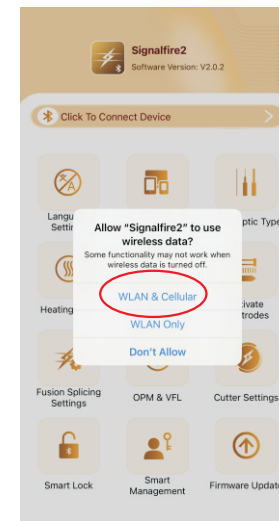
1. Apple phone(iOS system) to turn on bluetooth permissions.



1 Turn on the iPhone system Bluetooth function.

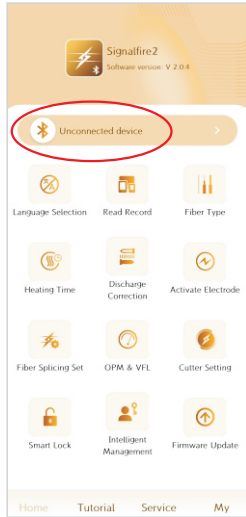


2 Allow the Bluetooth permissions

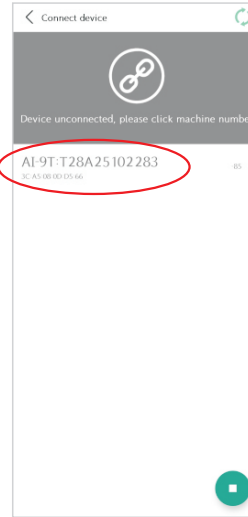


3 Allow the WLAN&Cellular permissions

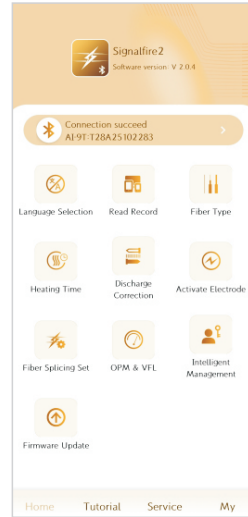
SOFTWARE BLUETOOTH CONNECTION



④ Press the "Unconnected device" to search the machine SN



⑤ Press the machine SN to connect the machine.



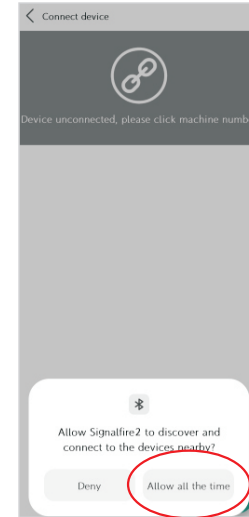
⑥ Remind you succeed then turn into the main page.

SOFTWARE BLUETOOTH CONNECTION

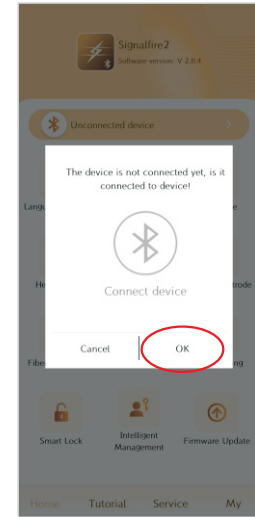
2. Android phone to open the bluetooth permission function is as follows



① Allow the Phone location permissions

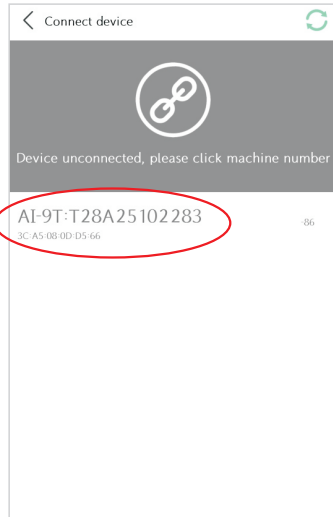


② Allow the device finding

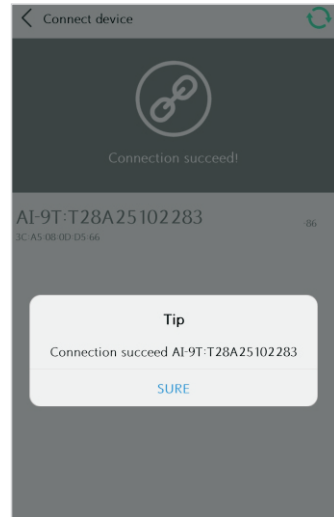


③ Allow the Bluetooth permissions

SOFTWARE BLUETOOTH CONNECTION

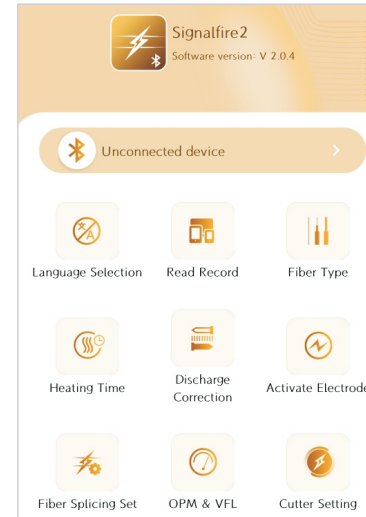


4 Press the machine SN to connect the machine.



5 Connection succeed

SOFTWARE BLUETOOTH CONNECTION



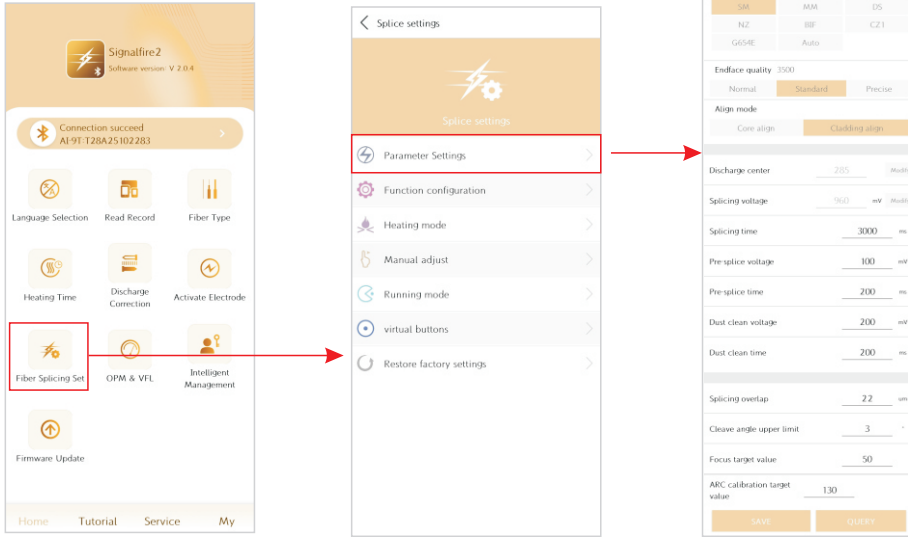
7 Back to the APP main page

After you connect the machine to the mobile APP, then we can have a setting of the machine function, each function means one icon which shows on the LCD Screen. these function after you have set them and save the setting, you can use it as what you have set without app connection in the future.

APP MENU FUNCTIONS

Enable Bluetooth on your phone, connect to the fusion splicer, run the app, and configure and debug the fusion splicer's functions, export and upload fusion data to cloud storage, upgrade firmware, and bind your account to achieve intelligent management and other interconnected functions.

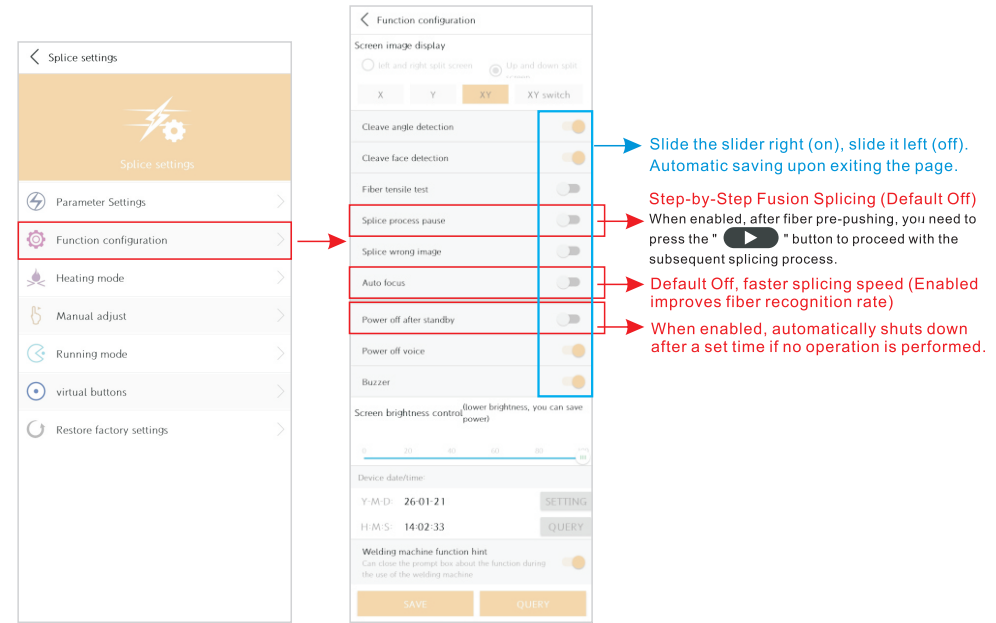
Parameter Settings



Save and exit after making changes.

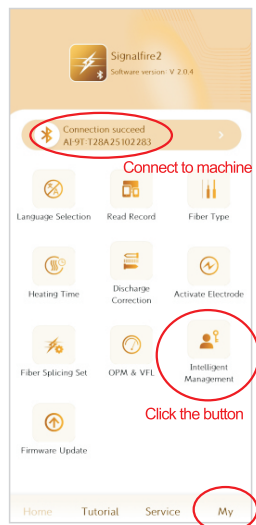
APP MENU FUNCTIONS

Function Configuration: Slider to On or Off



INTELLIGENT MANAGEMENT

Smart lock Usage: to limit the machine using time, to limit the machine Using times. and can lock the machine remote (wherever the machine is, when the machine connect to the app then the machine will be locked.) Used for the machine rent, lend to worker to use the machine. Your account have the highest control authority to control the machine. And keep your account in your heart.



Login account



Click to button



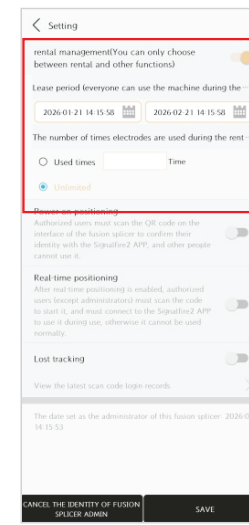
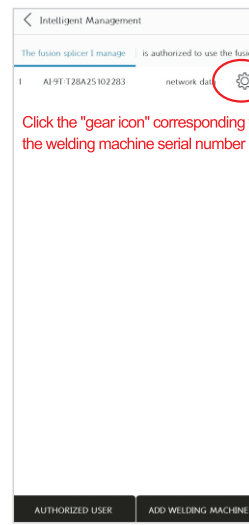
If you have multiple machines, click here to switch to binding to other machines.

INTELLIGENT MANAGEMENT

After you bind the device
Enter the smart management page, and the welding machine you have controlled will be displayed



Click to button



Click on the "rental management" to implement the time and number of usage restrictions

CHAPTER III ELECTRODE REPLACEMENT AND ACTIVATION

When replacing the electrode, you must use official electrode which come with QR code for this machine. The service life of the electrode is 4000 times.

When the electrode splicing times reaches 3500, the machine screen will display a prompt "To ensure the splicing quality, please prepare to replace the electrode";
when the electrode splicing times reaches 3800, the machine screen will display a prompt "The electrode life is about to expire, please replace the official electrode and verify the QR code ⚠️";
when the electrode splicing times reaches 4000, please replace the new electrode and verify the electrode code in APP (verification/activation of electrode see page 35).

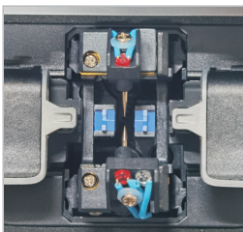
The electrode replacement procedure is as follows:



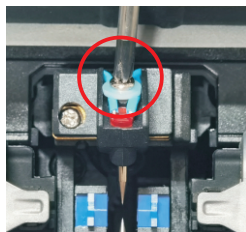
1. Please pinch the electrode cover on both sides slightly, see the location in picture then remove up the electrode cover.



2. The cap size of two electrodes is different, wider head is for the electrode which is close to screen direction.



3. Take away the cover as shown in picture.

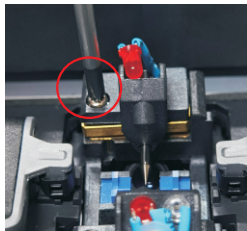


4. Use the screwdrivers to loosen the screws

ELECTRODE REPLACEMENT



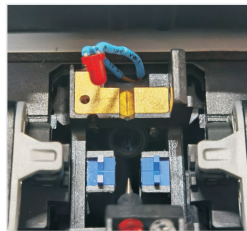
5. Use tweezers to remove the lamp from both sides.



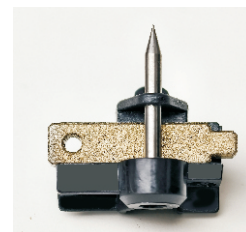
6. Loosen the screws of the electrode base, and take the screws out.



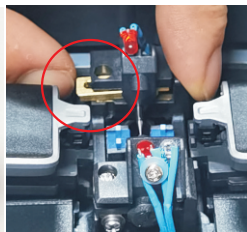
7. Push the copper gasket out of the hole, then take the electrode and the copper gasket out of the machine.



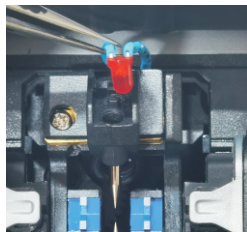
8. After removed the electrode, base's status



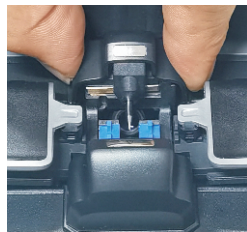
9. Replace the electrodes and install the pins.



10. When mount the electrode, push the copper gasket pins to the hole



11. Check the screws' hole and then tighten the screws, and put the red lights back to the light's hole (no need mount the screws of the lights)

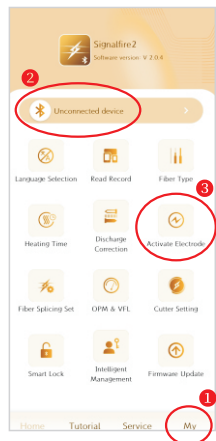


12. Put the electrode cover back then the electrode change has been done.

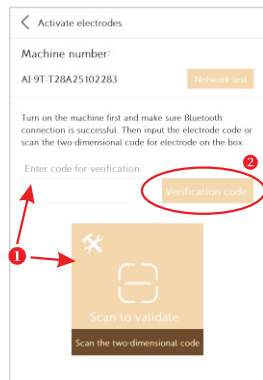
QR CODE VERIFICATION/ACTIVATION

The official code verification is operated by the mobile phone APP "Signalfire2".
Please scan the QR code on the machine screen or get in APP Store to download the software before use.

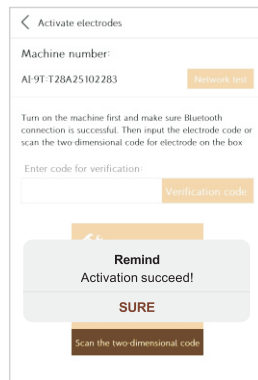
ATTENTION: after you have replace the electrode and verify the code, please remember to do an arc calibration so that the machine can performance better.
the method to verify the electrode:



- 1 log into your account;
- 2 Use APP to connect to the machine
- 3 press the button "Activate Electrode", then get into the page of the electrode activation



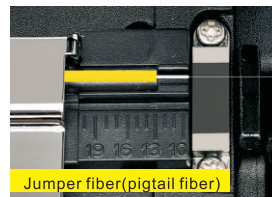
- 1 Scan the QR Code which is on the electrode cover, or you can input the QR Code Number into the text box.
- 2 after the number is show in the text box, then we press the button "verification code" to activate the machine.



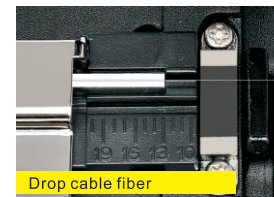
After you have done the verify the code, then it may load for few seconds, then it will remind you "Activation Succeed". then the machine can normal use again.

CHAPTER IV FIBER CLEAVING AND DEPLOYMENT

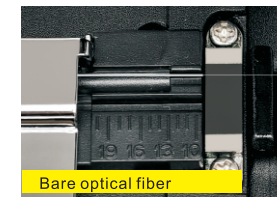
Cleave fiber instructions:



Make sure that the white layer edge is between the scale of 10-15 mm, the yellow sleeve edge is between the 15-20 mm.



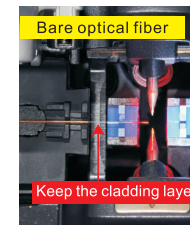
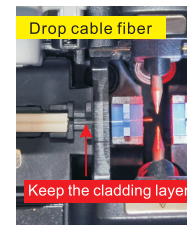
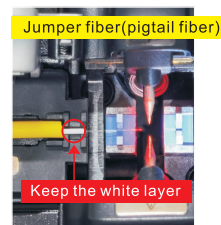
Scale is between 13 to 18



To the cladding layer, the scale is between 10 to 12

Make sure that you have remove the bare optical fiber cladding with stripper, then the cleaver can cut the fiber good end face.

Instructions for put fiber into holder:



When you put the fiber on the machine's V-groove, make sure that the fiber end face is close to the electrode tips but the end face is not exceed the tips. put the fiber on the V-grooves, if the end face too short to too long to the electrode tips, it will remind you to put the fiber again.

CHAPTER V DAILY MAINTENANCE

1. Pay attention to dustproof and remove dust

V-grooves, electrodes and Lens must be kept clean usually and windshield cover should be closed if you don't use it.

1. V-groove Cleaning

If the V-groove has dirty, then the fiber can not align and dislocation and give you an error message. Thus in the daily work, you should always check the V-groove and regular cleaning V-groove.

the method to clean V-grooves:

- 1) use the utility knife to scratch the V-grooves one direction, and make for about 3 times. both side need to clean like this.
- 2) use alcohol swab to clean the V-grooves again.

2. Cleaning the electrode

If the electrode is dirty or the electrode tips become dark, you need to clean the electrode:

- 1) use the knife to scrape the tip's dirt and keep it clean.
- 2) use alcohol swab to clean the tips.

3. If the outside lens which is under electrode is dirty, the fiber may be blur then give you an error message, or the fiber can be spliced but it will give you a high loss fusion.

Follow the steps below to clean the lens :

- (1) make sure that the machine is turn off.
- (2) Use alcohol swab to gently wipe the lens. Then wipe with a dry cotton swab to remove extra alcohol.
- (3) Turn on the power, make sure that the display is not visible dust and stripes.

II. Prevent Strong Shock or Vibration

When you need to move or transport the fusion splicer, please be careful and gently. For long-distance transportation, please wrap it with foam to prevent collision

III. Storage

When you do not use the machine for a long time, please must turn on the machine once half a year. if in high moisture environment, please use the machine often and put the desiccant into the carry case to prevent mildew microscope head.

DAILY MAINTENANCE

IV. Precautions

- (1) When the fusion splicer is using AC power , please take attention to protect the adapter , and the power supply is properly grounded.
- (2) When the fusion splicer is in the ARC discharge process, there are several kV high voltage between the electrodes, please do not touch the electrode rod at this time!
- (3) Please be sure that there is no gasoline, biogas, Freon gas and other flammable gas in the environment to avoid the poor fusion or accident.
- (4) When you wipe to clean the fiber holder and lens, please must use cotton swab to wipe in one direction.
- (5) There are many structural precision components in the fusion splicer. Except the electrodes, the other part is banned for user to disassemble and change. Because these parts' position are precision-calibration, once there is any changes, it is difficult to return to its original position.
- (6) The objective lens, V-groove, display screen, etc should be kept clean. Clean only with cotton swab or alcohol swab, you can not use other chemicals.

V. Troubleshooting and solutions The table lists a general troubleshooting method for the user reference.

When the user can not solve the situation, please contact with the suppliers directly.

Troubleshooting	Reason	Solutions
No image after placing fiber	<ol style="list-style-type: none">1. Not power on2. Fiber isn't in V-groove or v-groove has dirt3. Fiber put too short on V-grooves or fiber is broken4. The align mechanism is not initialized5. No signal detected for close windshield cover	<ol style="list-style-type: none">1. Press the power key2. Re-place the fiber or clean the V-groove3. Re-clean the fiber4. Press RESET key5. Check if the magnet on wind cover left side is fall off or the correspond position Allen screw on the panel is loosen.
splicing loss is too high	<ol style="list-style-type: none">1. The cleaving quality of the fiber is poor2. Splice parameters unreasonable3. discharge center offset (rarely occurs)	<ol style="list-style-type: none">1. Re-clean the fiber2. Repeat the ARC calibration3. Repeat the ARC calibration

DAILY MAINTENANCE

Troubleshooting	Reason	Solutions
The ARC does not discharge or has scars	1.The cleaving quality of the fiber is poor 2.The splice parameter is too small 3.The electrodes has adsorbed dust 4.Running data error	1.Re-cleave the fiber face 2.increase the cleaning voltage; do ARC calibration again 3.Clean the electrode with a brush 4.Turn off and restart.
The spliced area becomes thinner	1.Splicing parameters unreasonable, splice voltage is too high 2.Splicing overlap is too small	1.ARC calibration 2.Increase the amount of splicing overlap
splicing zone is thicker	1.Splice parameters unreasonable, splice voltage is too small 2.Splicing overlap is too big	1.ARC calibration 2.Reduce the amount of splicing overlap
Splicing has bubbles (usually occurred in the multi-mode fiber splice)	1. Fiber end with burr, not flat 2.Fiber quality is not good	1.Increase the cleaning voltage 2. Re-cleave fiber 3. Replace to qualified fiber or cut off a part of the existing fiber and try again.
Splicing points have vertical shadow line	1.Fiber core does not match (type or core diameter is different) 2.Multimode fiber appear very light shadows after splicing	1.use the same type fiber on left and right side 2.it's normal,will not influence the fusion quality.
Fiber in screen is dislocation	1.Fiber not enter the V-groove completely 2.V-groove is dirt	1.Re-place the fiber 2.Clean the V-groove with alcohol and brushes
The image is on the top or bottom of the display	1.V-groove is dirt 2.Fiber not enter the V-groove	1.Clean the V-groove with alcohol and brushes 2.Re-place the fiber
The image is blurred	1.Fiber not enter the V-groove 2.V-groove is dirt	1.Re-place the fiber 2.Clean the V-groove
Cleave can not cut off the fiber	1.Cladding layer is not stripped 2.Cladding layer stripped too short and the rubber pressure on both sides of the blade did not compress the fiber 3.The cutting point of the blade becomes blunt or broken	1. Use a Miller clamp to peel off the cladding 2.The length of the stripped cladding should be longer than 30 mm 3.Looseen the retaining screw in the middle of the blade and turn the blade at an angle


DAILY MAINTENANCE

VI: when you use the machine, normally it may happened the below problem:

Fiber Splicer is precision machine, when you daily use the machine, please avoid the dirt get into the machine, and keep daily clean of the machine.

1. Fiber has put on the V-grooves, but the machine prompt icon shows you that fiber is not on the V-grooves



1) fiber holder is not in the initial position, press the reset button  (the left first one), then put the fiber again on the v-grooves.



2) when you put the jumper fiber on the fiber holder, the white jacket is not hold by the fiber holder, the fiber holder front end need to press the white jacket.

2. Fiber is put in the right way on the V-grooves and fiber end face is good position to the electrode tips. but machine still remind you the fiber put too long.

1) check the display is there dirt display in the screen page. if have then we need to clean the outside lens which is below the electrode. if the display still show the dirt on the screen, then please contact after sales service.

2) when the lens is fog also will happened this, then we need to clean the outside lens which is under the electrode, and you can use the hair dryer to blow the lens to remove the fog.

3. Fiber has aligned but it didn't process the fiber fusion. It remind you to press the start button (the left second one) to continue the fiber fusion process.

1) if the screen show you the fiber end face error icon, then you need to re-cleave the fiber again.

2) If the screen didn't show any error icon, then check the function of the "Splice process pause". turn off it, it will auto process fiber fusion again. [APP Page: Fiber Splicing Set->Function Configuration->Splice process pause]

4. Focus failure

1) clean the outside lens which is under the electrode. Clean the V-grooves. Then press the reset button (the left first one).

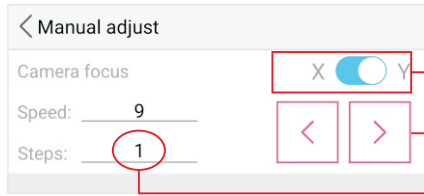
2) Do machine self-checking, check that is there any error of the "focusing motor" error.

5. Machine show you error icon:

Left and right side fiber is different types fiber, need to change to same type fiber to do the fiber fusion process. Also if you thought that doesn't matter and your project can permit the different type fiber, then you can press the start button (the left second one) to continue the fiber fusion.

☑ DAILY MAINTENANCE

6. Fiber is blur in same screen (X or Y screen)



Slide to which side then adjust which side, now it stays at y side, so we adjust Y

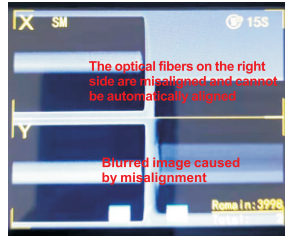
Left and right control: can adjust the focus

If the value is big, it will be more obvious when you adjust the focus

Method:

- ① get into app and connect the machine, turn on the function auto focus [Fiber Splicing Set->Function Configuration->auto focus], save it. And then open the wind cover and close it, check the machine can it make the fiber show clear.
- ② If above can not solve it, then we turn off the auto focus, get into the page of the manual adjust [Fiber Splicing Set->Manual adjust], like the picture show you.
- ③ Do machine self-checking, check that is there any error of the "focusing motor" error.

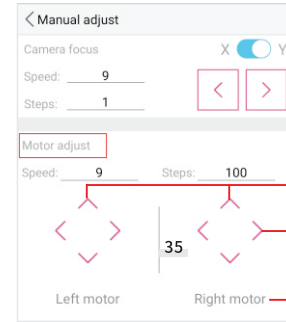
7. Fiber all show in the screen but one side fiber is dislocation, X or Y screen one of them show the fiber blur.



Method:

- 1) clean the V-grooves, then press the reset button (the left first one)
- 2) manual adjust the fiber dislocation, like the pictures show [Fiber Splicing Set->Manual adjust]

☑ DAILY MAINTENANCE



up and down button, to control the fiber move up and down in the screen

left and right button, to control the fiber move left and right in the screen

left motor control left side fiber right motor control right side fiber

8. fiber fusion quality is high loss

There are many reasons will make the High loss of the fiber fusion: machine status, machine discharge level, fiber end face quality, is the fiber clean, is the fiber's type same, fiber quality, and the fiber tension status.

Method to solve the high loss of the fiber fusion:

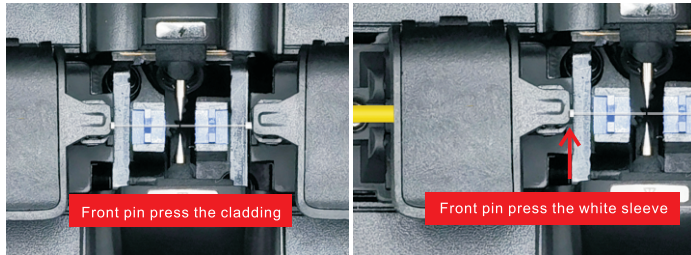
- 1) check that did the fiber fusion make the high loss. You can use a jumper fiber to do a test of the fusion loss: test the initial jumper fiber loss with OPM, then cut the jumper fiber and do a fiber fusion on it, then test again the loss of the fiber fusion. If the loss change too much, then we do the follow steps to check the fusion problem.
- 2) clean the V-grooves, clean the outside lens which is below the electrode, clean the electrode tips. After you have done the clean job, then we do an arc calibration until the machine remind you the arc calibration is succeed.
- 3) Pay attention to the fiber clean: after removing the fiber cladding, please clean with alcohol cotton, then cleave the fiber end face good (no burr and flat end surface), when you put the fiber on the V-grooves, fiber end face please don't contact the V-grooves.
- 4) Left and right side fiber, we recommend you to use the same type and specification fiber to do the fiber fusion.
- 5) Adjust the cleaver in good condition, so that we can low down the fiber end face influence.

DAILY MAINTENANCE

- 6) Fiber fusion has done but the fiber will break in the near future and fusion has a high loss :
- 1) Please clean the V-grooves and the electrode tips, do an arc calibration until it reminds you the arc calibration is succeed.
 - 2) Adjust the heating oven heating time
If the heating time is short, the sleeve will slide and can not protect the fusion point.
If the heating time is too long, will make the sleeve to extruded fiber then make the fiber hurt which we can not see.
 - 3) when you heat the protection sleeve after you have done the fiber fusion of Drop Cable Fiber, please use double steel wire protection sleeve.
 - 4) when you heat the protection sleeve, please don't tight the fiber too hard, take the fiber normally into the heating oven.

9 spliced fiber is easy broken

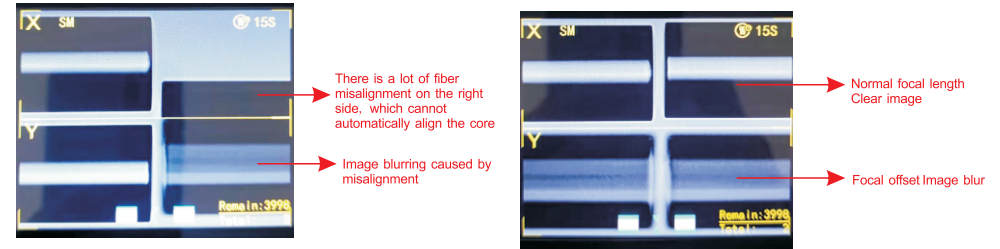
- 1) Broken from the fusion point, that means the arc-discharge is not suitable for the local environment, please clean the electrode tips, clean the outside lens which below the electrode, clean the V-grooves then do an arc calibration until it reminds you succeed.
- 2) if fiber broken from the fiber holder front pin. Then we need check that did the fiber holder front pin press the fiber where the cladding has removed. Make sure that fiber holder front pin should press the jumper fiber white sleeve, should press the bare optical fiber cladding.



DAILY MAINTENANCE

Frequently remind you need to cleave the fiber again, remind you that machine can not recognize the fiber

- 1) Fiber end face is not good, please check the fiber cladding did it have been removed, remember to clean the fiber, and check the cleaver did it well work.
- 2) Fiber is blur and give you the error remind: like the fiber is dislocation, focus is blur.(Solution please check previous content)



- 3) Dust or fog on the lens causes the entire screen image to appear dark or washed out, as shown in the image below.

The fusion splicer indicates a dirty lens or CMOS malfunction.

Solution: Wipe the lens, use a hairdryer on a warm setting to blow warm air onto the lens (be careful not to overheat), or let it sit for a while to allow the fog to evaporate. Alternatively, check if the red lights on the electrode pins is that working properly.

