

# USER'S MANUAL

Automatic intelligent optical fiber fusion splicer



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# CATALOGUE

<b>Safety Requirements</b>	1
<b>Warnings</b>	3
<b>Precautions</b>	5
<b>Chapter I</b>	
Operation Keys And Parts Introduction	7
Display Menu Introduction	9
Introduction To Splice Interface	12
<b>Chapter II</b>	
Software download	14
Software bluetooth connection	15
Screen Menu Function On/off	21
<b>Chapter III Toolbox Introduction</b>	23
<b>Chapter IV ARC Calibration</b>	24
<b>Chapter V Fiber stripping and put into holder</b>	27
<b>Chapter VI Replace Electrode</b>	29
<b>Chapter VII Activate Electrode</b>	36
<b>Chapter VIII Replace FC tank</b>	41
<b>Chapter IX User Instruction for Cleaver use</b>	43
<b>Chapter X Daily Maintenance</b>	48

## SAFETY REQUIREMENTS ▼

At any stage of operation on the optical fiber fusion splicer, you must take the following general safety precautions. Not 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. My 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 °C

Limit temperature: -10 °C ~ +50 °C

Operating humidity: 95% RH or less (no condensation)

Maximum wind speed: 15m/s

Storage conditions: -20 °C ~ +60 °C (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

## SAFETY REQUIREMENTS ▼

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 ▼

### • AC/DC Adapter

The output characteristics of the power adapter must meet the following requirements.

Voltage: 13V ~ 14V;

Current:  $\geq 4A$ ;

Polarity: Center is positive.

Using higher voltage will cause damage to the fusion splicer. AC / DC power adapter input AC voltage of 100 ~ 240V, 50/60Hz, if input voltage exceeds this range may cause permanent damage to the adapter!

### • Internal lithium battery

There is a lithium-ion battery cells in the fusion splicer, the use of other 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 a fire or an excessive heat to prevent lithium battery explosion.

### • 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.

## WARNINGS ▼

Liquid, foreign substances enter the interior of fusion splicer

Fusion splicer subjected to strong vibrations and shocks

There is no necessary parts that need to maintain inside the fusion splicer, it is forbidden to dismantle the fusion splicer, any dismantlement may result in personal injury or equipment can not be repaired

## PRECAUTIONS ▼

### • AC/DC Adapter

Please use the provided adapter for the fusion splicer, use of other adapters may cause damage to the fusion splicer.

### • Internal Lithium Battery

1. The battery may go into hibernation after long time placed, the capacity is lower than normal at this time, the durable battery time has also come to be shortened, but only after 2 to 3 times of normal charge-discharge cycles, the battery can be activated to restore normal capacity. Lithium is almost no memory effect, can be charged at any time.

2. The lithium batteries have the phenomenon of self-discharge, if the battery is preserved for a long time in low battery power, the internal structure of the battery may damage from self-discharge, reducing battery life. Therefore, long-term preservation of lithium batteries please recharge it every 3 to 6 months, pay attention to the battery charge capacity can be 60% to 80%, not full.

3. Long-term storage battery (stored for more than 6 months) temperature range: 0 °C ~ 40 °C. Battery short-term storage (storage time is less than or equal to 6 months) temperature range: -20 °C ~ 60 °C

4. To ensure the security of battery charging, the lithium battery in the fusion splicer is charging temperature range of 0 °C ~ 40 °C

## PRECAUTIONS ▼

### • LCD Display

1. Please do not let sharp object click on the LCD display, LCD display can not be forced shock

2. Do not use organic solvents or contaminants dripping on the LCD display, such as acetone, oil, antifreeze, grease, etc., otherwise may cause the LCD display not working.

3. Use silk or soft fabric to wipe & clean the LCD display.

4. Depending on the perspective of the viewing screen, the brightness of the display will be different. But may also have some black, red, blue or green dots on the screen, these are not the fault of the LCD display, it is normal phenomenon.

### • The use of fusion splicer

1. Fusion splicer is for splicing silica glass fiber, please do not use this equipment for other purposes. Please read this manual carefully before using

2. When used in dusty environments, please try to keep the windshield to be closed on fusion splicer.

3. When fusion splicer machine moved from a cold to a high temperature environment, please try to take a gradual warming way, otherwise it will cause condensation inside the instrument, it will have an adverse effect on the instrument.

4. Fusion splicer machine is a calibrated precision instrument, it is strongly advised to avoid vibration and shock. Storage should be used with a dedicated carrying case, long-distance transportation needs to pack a carrying case outside plus a suitable buffer box.

## CHAPTER I ▼

### Operation keys and parts introduction

The fusion splicer machine is mainly used for permanent splicing fiber, the machine can continue to splice ordinary rubber insulated fiber cable, jumper wire and a cladding diameter of  $80\mu\text{m} \sim 150\mu\text{m}$ , 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.



#### 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

#### CONTINUE

When the pause function is on, please press the CONTINUE key to continue the next operation.

#### X/Y X, Y DISPLAY TOGGLE KEY

X, Y display toggle

#### POWER

Long press to turn on or off.

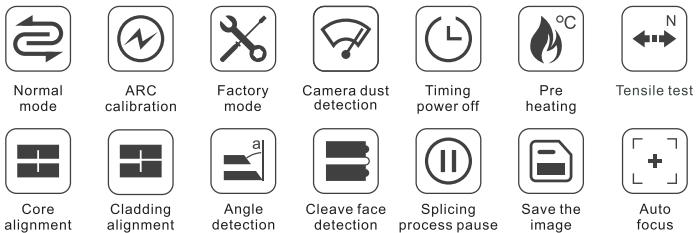
## OPERATION KEYS AND PARTS INTRODUCTION ▼



### Function description table

Number	Name	Function description
1	Power Outlet	Input voltage $13.5 \pm 0.5\text{V}$ ; input current $\geq 4\text{A}$
2	Charging indicator	Red is in charging, green is full
3	USB	Output $5\text{V} / 2\text{A}$ , for mobile phone charging
4	Battery popup button	Press to remove the battery
5	Heating indicator	When shrinkable tube heating is complete, the indicator light is off
6	Heating tank	Put shrinkable tube in it, close the lid and automatically heat
7	Lighting Switch	Press the key to turn on / turn off the lighting

## DISPLAY MENU INTRODUCTION ▼



## DISPLAY MENU INTRODUCTION ▼



**Normal mode** : Normal splicing mode for the machine



**ARC calibration** : The splicer machine corrects the appropriate discharge intensity automatically



**Factory mode** : Can adjust the fiber manually, align fiber, focus fiber, splice fiber and other operations



**Camera dust detection** : The splicer machine scans the camera image by line and column automatically. When there is interference point that will affect the image recognition, the screen will mark the specific location. If everything is normal, the screen will be blank and no mark



**Timing power off** : machine will automatically shut down when it continues to exceed the set time.



**Pre heating** : When the function is turned on, and for each time once the splicing is successful, the heater will automatically start for 6 seconds from the time of opening the windshield cover

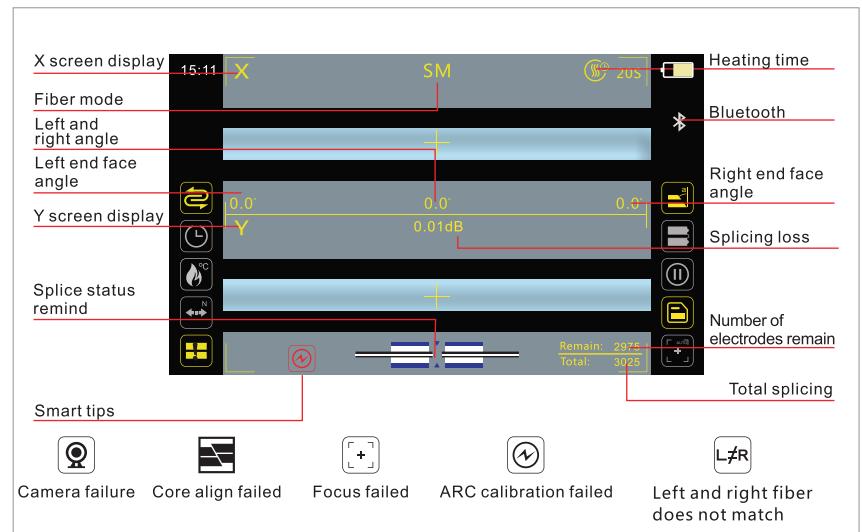


**Tensile test** : When the function is turned on, the tensile test is performed after each successful splicing.

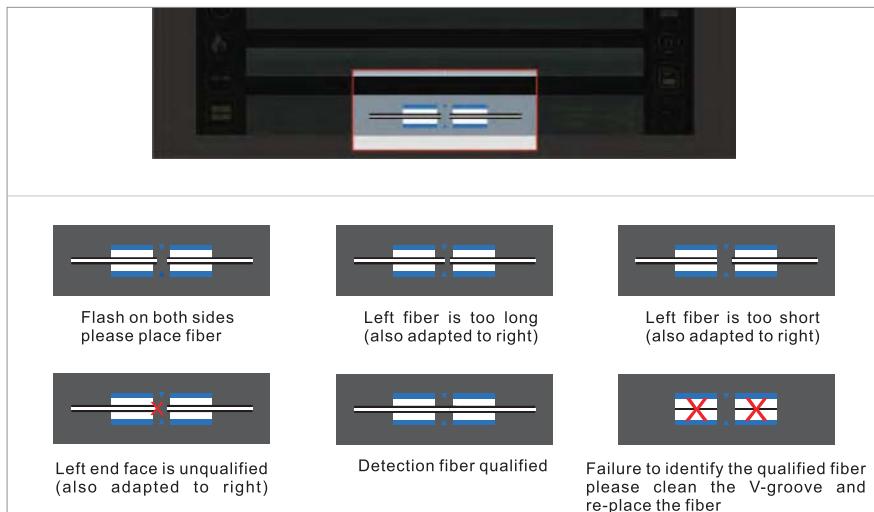
## DISPLAY MENU INTRODUCTION ▼

- Core alignment** : Fiber splicing is based on core alignment
- Cladding alignment** : Fiber splicing is based on cladding alignment
- Angle detection** : When the function is turned on, if the fiber cleaving angle is greater than the upper limit value (upper limit value can be set in the "Splicing settings" menu "Cleave angle upper limit"), the splicing machine will pause and report the error.
- Cleave face detection** : If the cleaving end face quality of the fiber does not meet the set parameters (end face quality requirements can be set in the "Splicing settings" menu "End face quality"), the splicing machine will pause and report the error.
- Splicing process pause** : When the function is on, the splicing machine will stop the final splicing process after in the completion of the fiber focus, end face detection and fiber alignment. Please then press the "Continue" button to perform the ARC discharge and the subsequent splicing process. If the cleave face detection is not passed, it will pause and report the error, then please press the "continue" key to ignore the error and continue the follow-up process
- Save the image** : When the function is turned on, it will save the splicing image when the splicing failed. It will not save the splicing image when the splicing is successful or this function is closed.
- Auto focus**: When the function is turned on, for each time splicing it will adjust the camera focal length to the set target value automatically (target value in the "Splicing settings" menu set "focus target value")

## INTRODUCTION TO SPLICE INTERFACE ▼



## INTRODUCTION TO SPLICE INTERFACE ▼



Introduction For Fiber Status

## CHAPTER II ▼

### Software download

中国地区：扫描二维码或进入苹果商店搜索“灼识掌中宝+” 下载手机APP.亦可进入网址 [www.sczhuoshi.com](http://www.sczhuoshi.com)的“软件下载”里面直接下载.

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



Google play



App store



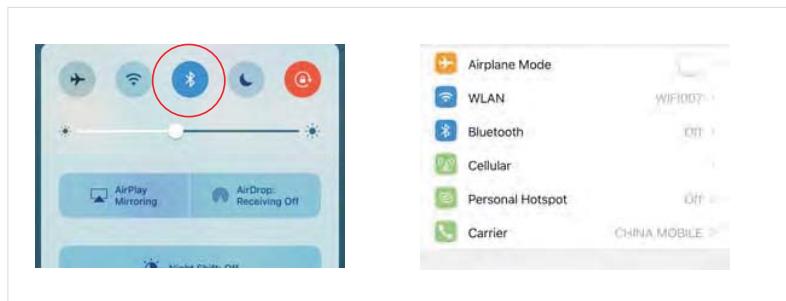
Scan QR code

## SOFTWARE BLUETOOTH CONNECTION ▼

The splicing operation does not require phones, the phone App is only for machine menu settings, and the splicer machine to store data when the data is exported to phone App, the users can also get support through the APP and after-sales service.

### Phone settings

1. Apple phone (IOS system) to turn on Bluetooth permissions



## SOFTWARE BLUETOOTH CONNECTION ▼

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

1. Open the phone settings and click on bluetooth.

2. Open the application more or application management

3. Select "signalfire2" in the list

## SOFTWARE BLUETOOTH CONNECTION ▼

4.select permission manager

5.select change bluetooth connectivity  
turn bluetooth on or off

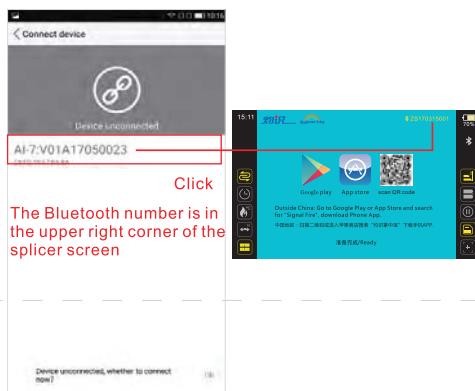
## SOFTWARE BLUETOOTH CONNECTION ▼

Login APP account and connect Bluetooth on splicer

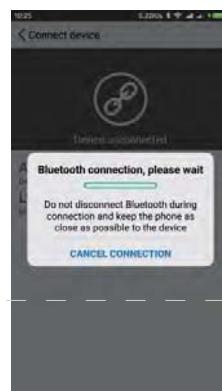
6. Please log in directly if you  
have an account, otherwise  
please register first

7. Click "Connect to Bluetooth"  
after login is successful

## SOFTWARE BLUETOOTH CONNECTION ▼



8. Please select the corresponding Bluetooth number and click on, if you can not find the Bluetooth number, please check whether the Bluetooth or the machine power is turned on



9. Connecting...

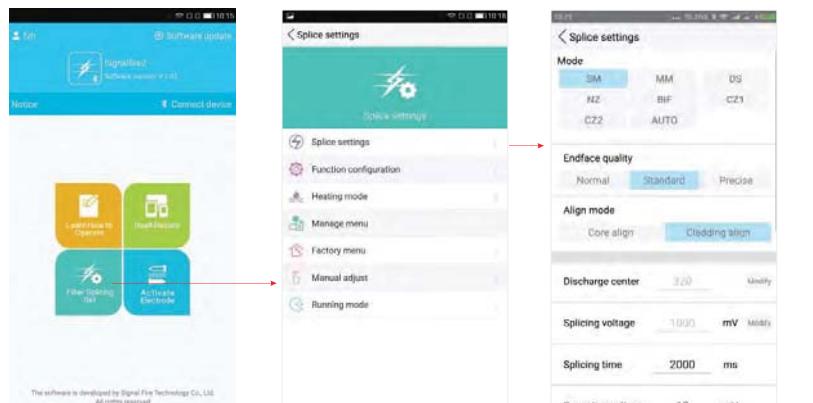
## SOFTWARE BLUETOOTH CONNECTION ▼



10. Connect successfully

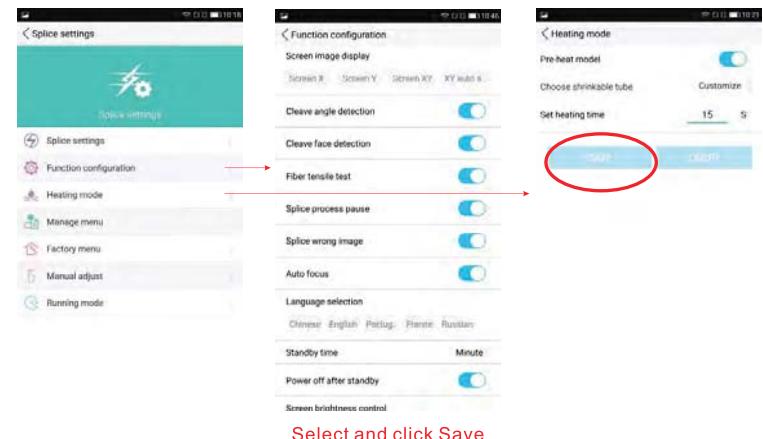
## SCREEN MENU FUNCTION ON/OFF ▼

Open the phone APP, and open the Bluetooth on phone to set up the display menu on the machine, and machine will update at the same time. **The splicing operation does not require phones**, the phone App is only for machine menu settings, and splicer machine to store data when the data is exported to phone App, the users can also get support through the APP and after-sales service.



## SCREEN MENU FUNCTION ON/OFF ▼

When the settings are saved, the display icon will be highlighted / darkened accordingly, otherwise please check whether the Bluetooth is properly connected.



## CHAPTER III TOOLBOX INTRODUCTION ▼

Introduction of splicer machine functions



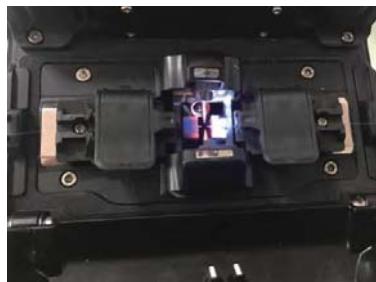
## CHAPTER IV ARC CALIBRATION ▼

**ARC Calibration :** According to the local ground elevation, temperature, moderate and other environmental factors to match the most suitable discharge ARC, in order to obtain the best splicing effect, we strongly recommend you to do ARC calibration when it is the first time to use the new machine, the seasonal changes, the use place changes, or you replaced the electrodes.

The procedure for ARC Calibration is as follows:

Step 1: Please turn on the splicer machine, then login "Signalfire2" on your phone, connect the Bluetooth, open the ARC Calibration and save it. (See picture)

## ARC CALIBRATION ▼



Step 2: After open the ARC Calibration, the icon of "Normal Mode"  " will change to the icon for "ARC Calibration"  ". Then please strip and cleave the fiber, place the fiber to fiber holder and close the windshield cover, the splicer machine will perform the ARC calibration automatically. (See picture)

## ARC CALIBRATION ▼



Step 3: There is flash on the display screen and slight burst from the ARC, the fiber head is burning into a spherical shape, the action stops after the screen icon "  " change back to "  " icon (see picture), it shows the ARC calibration is successful. If the icon does not change back to the "Normal Mode"  " icon, the screen  fiber still flashes, please re- cleave the fiber and repeat the above steps until the ARC calibration is successful.