SFS-3000 Series Optical Fiber Fusion Splicer User Manual

- Please read this Manual before operation
- Please keep this Manual together with the fusion splicer for future reference

July, 2020

Saluki Technology Inc.

Preface

Thank you very much for choosing the SFS-3000 Series Optical Fiber Fusion Splicer produced by Saluki. The following manual will mainly introduce the characteristics and instructions of fusion splicer. By adopting innovative design and exquisite manufacturing technology, our product will give you excellent splicing experience. Please read this Manual carefully for your convenience. We will do our utmost to meet your needs, provide you with high quality measurement instruments, as well as first-class after-sales service. With the principle of excellent quality and courteous service, we will provide satisfactory products and service to the users. We sincerely welcome your inquiry.

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This Manual introduces the applications, performance characteristics, basic principles, method of operation and cautions etc., of the SFS-3000 Series Optical Fiber Fusion Splicer, to help you get familiar with and master the operation method of this device. Please read carefully and follow the instructions.

Owing to time constraints and the author's limited knowledge, errors and omissions of the Manual are inevitable. We implore every user to criticize and correct them! We sincerely apologize for the trouble caused by our mistakes.

CONTENTS

Safety Instructions

The following safety instructions should be abided by during whole operation process of SFS-3000 Series Optical Fiber Fusion Splicer (hereinafter referred as “splicer”). In case any of these safety instructions, warnings and precautions are not strictly followed, the safety standards deployed by design, manufacture and operation of the splicer will be violated. Saluki shall not be liable for any consequential damages in connection with these violations！

● Operation environment and power supply

Please refer to technical parameters defined in Chapter 2 for performing and storage environments and operation power supply of the fusion splicer. Please ensure matched power supply for the splicer before Power ON and all safety measures are taken.

- **Do not use the splicer in a flammable and explosive environment**

Do not use the splicer in an environment with explosive gas or smoke.

- **Do not disassemble any parts of the splicer without permission**

Despite the parts allowed to be replaced by users in the Manual, any remaining parts should not be disassembled without permission. Only SALUKI or authorized engineers are eligible for parts replacement and internal adjustment.

Warnings

● AC/DC power adapter

Only standard adapter from manufacture is allowed to use. Do not put heavy objects on the power line, do not heat or change the cable. Improper or broken cable will result in fire, electric shock and equipment damage, and may even cause fire, human injury or death.

● Built-in lithium-ion battery

The splicer contains a dedicated lithium-ion battery as other batteries will damage it and threaten personal safety of users.

For the purpose of safety, do not disassemble the lithium-ion battery package to prevent a short circuit. The battery will explode if it is shocked violently, gets close to or is thrown into sources of fire or intensive heat.

Operation of the fusion splicer

Turn the splicer off immediately and unplug the adapter from the power input port in case the following conditions are seen:

- Fluid or unknown matters enter the splicer;
- The splicer suffers from severe shock and vibration.

No user serviceable parts inside. So do not dismantle it as any unqualified repair may cause permanent destroy of the splicer and even personal injury.

During ARC discharge of the electrodes, voltage between the two electrode bars reaches as high as thousands volt. Do not touch the electrodes to avoid damage to the splicer and personal injury.

Repair and Maintenance

Over the warranty period, breakdowns of the splicer deserve free maintenance. However, the following circumstances are not covered by the warranty.

- Breakdowns or damages caused by force majeure, such as natural disasters.
- Instrument damage or performance degradation caused by violation of the Manual and mishandling.
- Vulnerable parts, such as lithium batteries and electrodes, enjoy separate warranty periods.
- Repair of the splicer should be performed by SALUKI or authorized repair units. Dismantling and repair by any other parties and personnel are illegal, and the warranty becomes invalid. SALUKI retains the right to pursue legal actions against any violators.
- In case the splicer should be returned back to the factory thanks to repair or maintenance needs, it should be put in the portable box and be transported in the original package. Any damages caused by improper packing will not be covered

by the warranty.

Remarks：

SALUKI reserves the rights to modify the design and structure of the splicer, but not be liable for free improvement and replacement of the sold instruments.

Chapter 1 Overview

The Saluki SFS-3000 Series Optical Fiber Fusion Splicer is mainly used for the permanent splice of optical fibers, it is widely applied in fiber communication projects and production test of passive optical devices.

SFS-3000 series uses German CNC technology and integrated fiber-adjust frame which can make the fusion splicer more stable. Our new technology greatly shortens the time for splicing and heating. Micron-level parallel clamping, high precision alignment of the spindle, exquisite design with strong solid protective shell can adapt to in harsh environment. Touch screen application with fully automatic splicing procedures will bring great convenience to users.

SFS-3000 series also has many features such as light weight, touch screen, friendly UI, fast fusion and heating speed, LED lights and illuminated keyboard which are suitable for field work.

Please refer to Fig. 1-1 for the appearance of SFS-3000 Series Optical Fiber Fusion Splicer.

Fig. 1-1 Appearance of SFS-3000 Series Optical Fiber Fusion Splicer

Chapter 2 Technical Parameters

Model	SFS-3000	SFS-3000H
Applicable Fibers	SMF (ITU-T G.652 & G.657), MMF (ITU-T G.651), DSF (ITU-T G.653), NZDSF (ITU-T G.655)	
Typical Splice Loss	0.03dB (SMF), 0.02dB (MMF), 0.05dB (DSF),0.05dB (NZDSF)	0.03dB (SMF), 0.02dB (MMF), 0.04dB (DSF), 0.04dB (NZDSF)
Return Loss	≥ 60dB	
Compatible Fiber	0.25mm – 3.0mm, Indoor cable	
Splicing Time	6s (SM fast mode)	
Splicing Mode	Preset 41 splicing modes, storable 100 modes	
Heating Tank	Preset 5 kinds of thermal heating tube: 20/30/40/50/60mm, Maximum 100 modes	
Heating Time	Fast heating time: 13s, Typical heating time: 30s	
Estimated Splice Loss	Yes	

Protection Sleeve Length	20mm – 60mm
Results Storage	20000 records & 200 images
Tension Test	1.5N – 2.0N
Electrode Life	5000 ARCS
Display	3.5 inch high resolution display with touch screen
Lighting	2 high-power white LEDs
Fiber View & Magnification	X, Y, XY, X/Y & 380x magnification
Splicing & Heating Times	300 times (100% battery charge)
Automatic Calibration	Automatic ARC calibration by air pressure and temperature
Operating Methods	Button or Touch screen

Terminal	USB 2.0
Power Supply	AC input 100-240V, DC input 12-15V
Battery Capacity	2200mAh
Weight	1.15kg (including rubber bumper)
Dimension	132mm*205mm*98mm (including rubber bumper)
Operating Condition	Altitude: 0-5000m above sea level; Temperature:-10 to 50°C; Humidity: 0 to 95%RH, non-dew; Wind: 15m/s
Storage Condition	0 to 95%RH, -40 to 80°C; Battery storage: -20 to 30°C

Chapter 3 Configuration

Standard configuration and options of SFS-3000 Series Optical Fiber Fusion Splicer is listed in Table 3-1 and Table 3-2.

Table 3-1 Standard package

No.	Name	Qty.	Remarks
1	Fusion splicer	1 PC	Host
2	AC adapter	1 PC	Accessory
3	Power cord	1 PC	Accessory
4	Battery	1 PC	Accessory
5	Fiber stripper	1 PC	Accessory
6	Cable stripper	1 PC	Accessory
7	Spare electrode	1 PAIR	Accessory
8	Cooling tray	1 PC	Accessory

9	Fiber cleaver	1 PC	Accessory
10	Fiber holder (5 in 1)	1 PC	Accessory
11	Alcohol bottle	1 PC	Accessory
12	Carrying straps	1 PC	Accessory
13	Cleaning brush	1 PC	Accessory
14	Carrying case	1 PC	Accessory
15	Quick guide manual	1 PC	Accessory

Table 3-2 Options

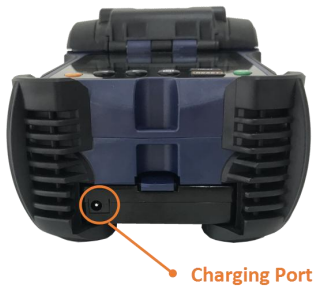
No.	Name	Remarks
SFS3000-01	SOC fiber holder	

SFS3000-02	Hanging neck type working tray	

Chapter 4 Basic Operation

4.1 Appearance overview

As a portable splicer, SFS-3000 series has a LCD monitor which can move flexibly and rotate, for easy observation of users.



4.1.1 Wind-proof cover

The wind-proof cover should be kept closed ordinarily and be opened up only when a fiber is placed in the splicer. Close the protector before your operation of the splicer. It comprises a reflecting mirror for lighting of the microscope and a small head which can stabilize bare fibers in the V-groove. The protector can also prevent wind and dust.

4.1.2 Monitor

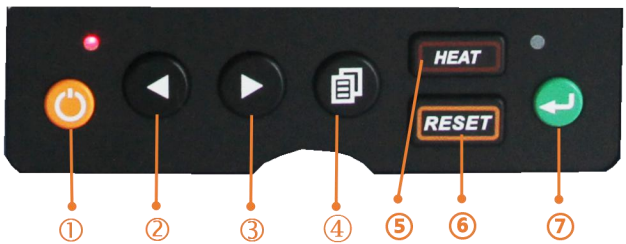
3.5 inch TFT-LCD monitor with adjustable angle and brightness, and can rotate automatically. Please protect the monitor from being hurt by hard objects during utilization.

4.1.3 Power supply

For users' convenience, the splicer has two types of power supply, which are the built-in lithium-ion battery and the external DC power supply. When an AC adapter is used for external DC supply, the battery will be charged simultaneously.

4.2 Panel description

The battery installation/removal diagram is shown below.



① ON/OFF: power on/off
② UP/DOWN: move cursor, change value.
③ UP/DOWN: move cursor, change value.
④ MENU: return the menu interface.
⑤ HEAT: heating execute / cancel
⑥ RESET: stop and back to ready
⑦ SET/CONFIRM: set/open/save

4.3 Battery charging

The battery installation/removal diagram is shown below.

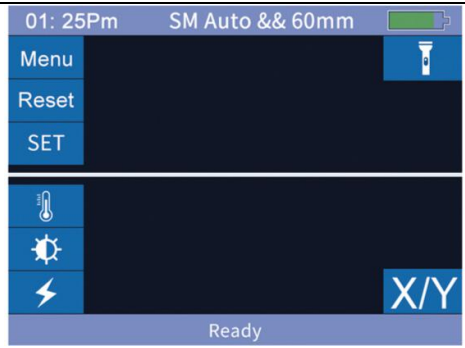
Press the battery button

Push the battery from the top down with the other hand

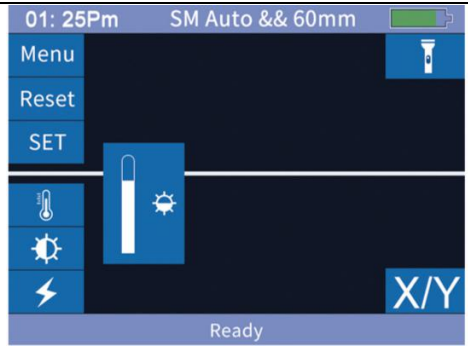
Charge the battery

4.4 Power on

Press the power button and wait for it to enter into working platform.



In the initial interface, press the  to adjust the LCD brightness.



4.5 Fiber preparation steps

There are three steps preparing for fibers before splicing.

- Step 1: Coating stripping

Peel off the jacket leaving at least 50mm coating. Remove the coating with a stripper, stripping length should be 30-40mm.

- Step 2: Use cloth or cotton paper soaked by alcohol density over 99% or high

density to clean the fiber.

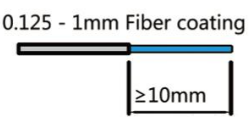
- Step 3: Cleave the fiber.

Use high precise fiber cleaver to cleave the fiber. Please refer to below cleaving example.

Tips: Remember to fit the heat shrinkable sleeve before fiber preparation.

Make sure the bare optical fiber and its cleaving surface are not stained.

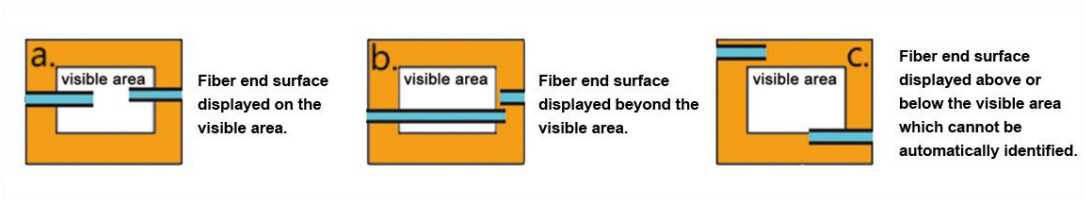
- Avoid putting the fiber in dirty table
- Avoid fiber swaying in air
- Check whether the V-groove and pressure arm are clean, if not clean, it must be cleaned with alcohol cotton swab.

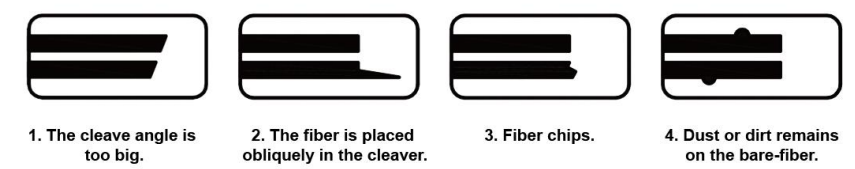


4.6 Automatic inspection of optical fiber

After placing the fiber, fusion splicer starts, and there will be discharging cleaning. After that, check the splicing angle and splicing quality of the cleaving surface.

Buzzer will alarm if the angle is bigger than the limited value or glitch on the cleaving surface, and there will be warning on the monitor.





4.7 Splicing procedures

1) Turn on the power, when splice SM fiber (ITU-T.G.652), SM mode is suggested.

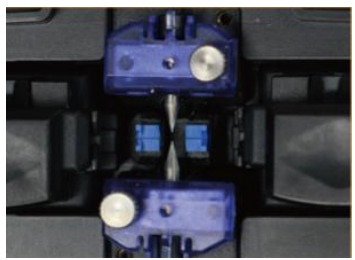
2) Confirm splicing and heating mode, when splice different types of fibers, Auto Mode is suggested, splicing speed will be slower.
3) Clean the fiber or heating shrinkable tube.Penetrate the fiber into heat shrinkable tube.

4) Strip the fiber and clean it with 99% or better purity alcohol. Make sure the coating trash or dirt is wiped out.

5) Please protect the cleaved fiber end from direct touch with any hard object.

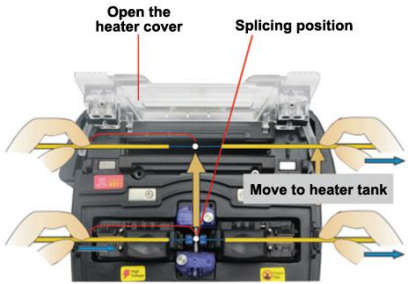
6) Place the fiber between the V-groove and two electrodes.

7) Close the wind-proof cover, automatic splicing starts, visual inspection on screen while splicing.



Attention: please don't slide the fiber along the V-groove. The cleaving section should surpass the V-groove but not exceed the mid of both electrodes.

8) Remove the spliced fiber, into the heater tanker; make sure the splicing position in the center of the heat shrinkable sleeve. Heating automatically starts after closing the heater cover.

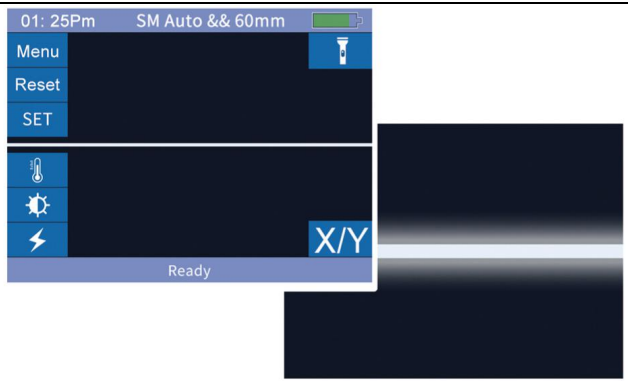


9) Completed.

Attention: when the splicing loss or the altitude change is big. Electrode stabilize and ARC calibration must be executed.

4.8 Magnification function of the screen

Users can double click the screen to magnify the monitor so as to inspect the splicing crack and estimate the splicing state.


01: 25Pm
SM Auto && 60mm
Menu
Reset
SET
X/Y
Ready

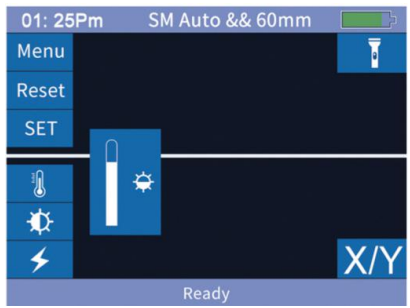
Chapter 5 Splicing Mode

The menu is concise and easy to operate, each splicing mode defines the current splicing mode, time and other important parameter. It's vital to select the right splicing mode. There is a pre-defined value of the usual fiber type. In this way, it becomes easier to modify the splicing mode and optimize the combination parameter of un-defined fiber type.

5.1 Display of the current splicing mode

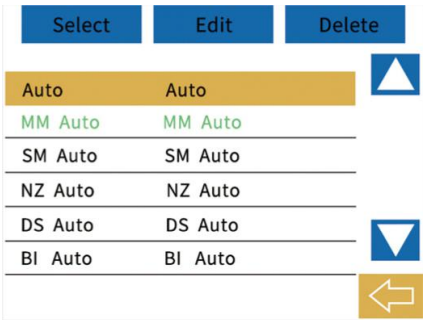
The current splicing mode will be shown on top of the operation interface.

Current splicing mode



5.2 Selection of the splicing mode

Click enter [Splice Menu], enter into the splicing mode and select and press the needed one (yellow font is the current splicing mode).



5.3 Parameter in general splicing

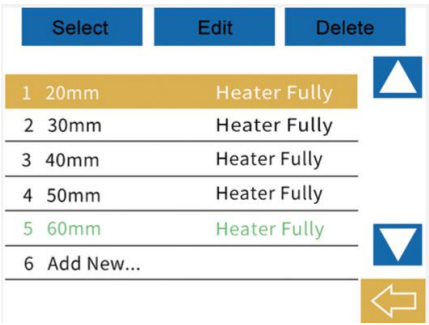
Parameter	Description
Mould	A list of splicing patterns stored in fusion splicer can be copied to the user editable area according to user selected splicing mode.
Name	Heating of splicing mode not more than 7 characters.
Annotation	Detailed explanation for splice mode less than 15 characters. Display in [select splice mode] menu.

Pull test	If [pull test] is set [on], after splicing, open the winder-proof cover, or press [set] button to do pull test.
Estimated loss	The estimated loss is an estimate of splicing loss. The fusion splicer calculates the loss of the splicing point according to the optical fiber image, and has some deviation from the real value. The loss estimation algorithm is based on single-mode optical fiber with a transmission wavelength of 1.31μm. The estimated value is good reference in the case of good splicing condition, but it can not be uesd as the basis for acceptance of the project.
Cleaving angle	Either side of the cleaving angle of 2 fibers is over than the selected cleaving angle limit, and error information will be displayed.
Space	Set the alignment and pre-splicing discharge, the distance between the left and right fiber ends.
Overlap	Set the overlap amount of fiber pushing, if the [pre-discharging strength] is low, then smaller [overlap] is recommended and vice

	versa.
Clean discharge time	The clean discharge can burn the tiny dust on the surface of the fiber in a small discharge cycle, and the discharge time can be changed by this parameter.
Clean discharge strength	Set clean discharge ARC strength.
Prefabricated discharge strength	Set the pre-discharge strength from the start of discharging to fiber pushing. If [pre-discharging strength] is set too low, then the axial deviation of the fiber will occur when the fiber cleaving angle is relatively poor. If too high, excessive melting of optical fiber ends will lead to greater loss of fusion.
Prefabricated discharge time	It is possible to set the same discharge time from the start to the start of the fiber advance, and the long [pre-fusing discharge time] and the high [pre-fusing discharge intensity] result in the same result.
Strength of ARC	Set the ARC strength.
Splicing ARC time	Set the ARC time.

Chapter 6 Splicing Options

Enter into [Option] menu, click and choose item, modify parameter.



Name	Parameter	Description
Splicing options	Automatic start	If Automatic start is set “on”, splicing starts when the winder-proof cap is closed. Fiber should be prepared in advance and put into the fusion splicer.

	Pause one	If [pause one] is set “on”, splicing will be ended when the fiber is pushed in right place, and user can see the cleaving angle.
	Pause two	If [pause two] is set “on”, splicing will be ended after completion of alignment.
	Alignment again	Alignment will lose efficacy after long state of [pause two], after which, fusion splicer will align again. If Alignment again is set “off”, when fiber axial displace, it’s suggested to choose manual splicing mode instead of alignment again mode.
	Faulty ignorance	Neglect the splicing fault, such as the cleaving angle is bigger than the maximum value. If set this function “on”, splicing can be continued.
	Pull test	If pull test is set “on”, then when splicing completed, turn on the winder-proof cap, pull test could be executed.

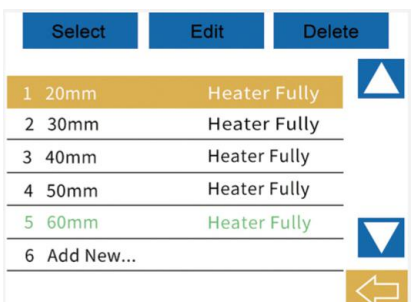
Fiber image set	Fiber space set	Set the fiber display while splicing.
	Pause one	
	Alignment	
	Pause two	
	Discharge	
	Estimate	

Chapter 7 Heating Mode

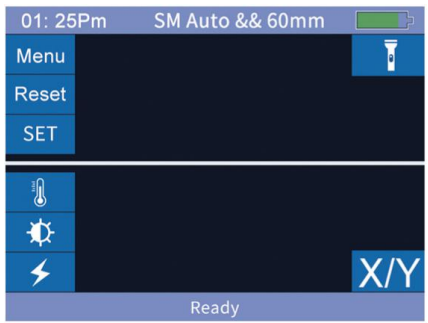
There are 50 heating modes stored, 5 default heating modes, user can define and add as they like. Choose the best heating mode and match the used heat shrinkable tube. For each heat sleeve, user can edit and define the corresponding parameters.

7.1 Selection for heating mode

Click and enter into [Heater Menu], choose the needed mode, then press until the font become yellow. This is the current heating mode.



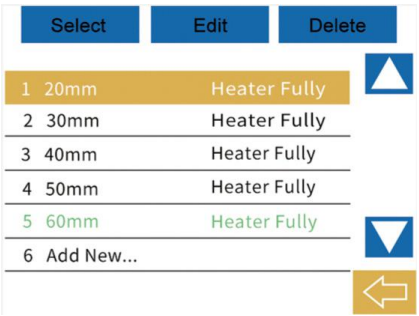
Check the chosen heating mode, press back to return to the initial interface.



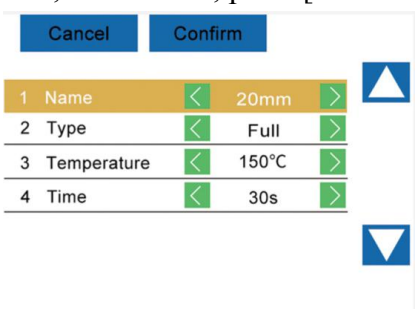
7.2 Edit the heating mode

Heating conditions stored in “heating mode” can be edited and modified.

Enter into [Heater Menu] and edit, select [Edit] to enter into [Edit Heater Mode].

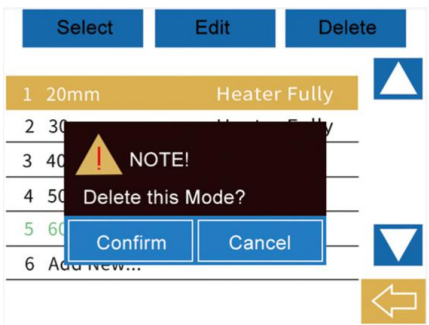


Choose and edit the parameter, after which, press [Confirm].



7.3 Delete heating mode

Enter into [Heater Menu], choose the mode you want to delete, press [Delete], press [Confirm] on the tooltip.



Parameter	Description
Name	Name of heating mode.
Heating type	Select [full] (heating all) or [part] (heating part of it) according to

	users requirements.
Heating temperature	Set heating temperature.
Heating time	Set the heating time from start to end.

Chapter 8 System Maintenance

8.1 Dust checking

The fusion splicer detects the dust on fiber, camera or objective by imaging, which can influence the splicing result. This function can detect the dust on the optical channel and judge whether it will influence splicing quality or not.

Operations

- Choose [dust checking] in [system maintenance].
- If fiber already set in the fusion splicer, take out the fiber and press [set] to start dust checking.
- If dust is found while checking, [executive failure] will be noted on monitor. Clean the objective and perform dust checking again, until it shows [executive completed].

Attention: if the dust still remains after cleaning, please contact the agent or manufacture.

8.2 ARC calibration

Motors are adjusted before exit-factory. Certainly, these settings may change for a variety of reasons. This function automatically calibrates the speed of 4 motors.

Operations

- Choose [ARC calibration] in [system maintenance].
- Prepare for the fiber and put into fusion splicer, press [set] to start .
- Speed of all motors will be automatically calibrated, and will hint for completion.

Atmosphere like temperature, humidity, air pressure are always changing. This makes the discharging temperature change as well. The machine is equipped with temperature and air pressure sensor which can give feedback to the control system to adjust the discharge intensity to maintain a steady state. Automatic calibration is not suitable for changes caused by the wear of motors and fiber trash adhesion, and the center position of discharging sometimes moves to the left or right. In this condition,

the fiber will be shifted relative to the discharge center, ARC calibration will be needed.

8.3 Electrode stabilize

When the environment changes dramatically, the discharge strength will become unstable which will increase the splicing loss, especially when it changes from low altitude to high altitude, it needs some time to stabilize the discharge strength. Under this condition, electrode stabilize would need to be performed for several times until it shows [stabilize finished].

Operations

- Choose [electrode stabilize] in [system maintenance].
- Put the prepared fiber into fusion splicer.
- Press [set], it will starts to stabilize electrode automatically according to following procedures.
  a. Discharge repeated for 5 times to ensure the place of electrode.

b. Splicing the fiber quickly.

c. The electrode position is accurately measured 16 times of electrode stabilize.

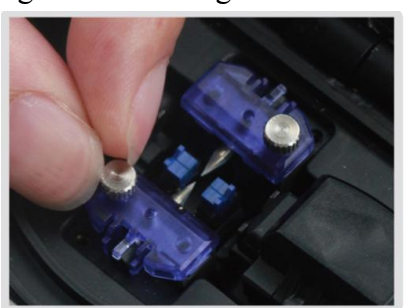
8.4 Electrode setting

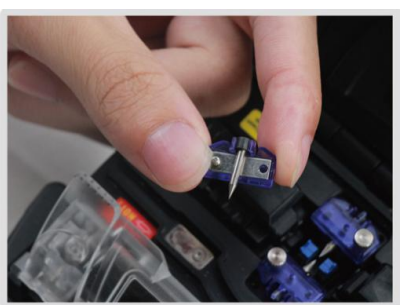
The splicing loss will be enlarged and splicing strength will be reduced when the discharging times exceed the electrode life. The electrode is worn by use and must be regularly cleared according to the concentration of the oxide. Set a reminder when the electrode was used for 2000 times, and it is recommended to update new electrode bar when splicing over 2000 times.

When over 3000 times, there will be [please change the electrode bar] reminder when turning on.

- When change the electrode bar, please press [replace electrode] in [electrode setting] or turn off the power and change.
- Lose the screw on the electrode, take off the old electrode bars.

- Be careful not to pull the wiring out when replacing the electrode bars.
- Clean the new electrode bar with a clean swab or dust-free cloth soaked in alcohol, then install to the fusion splicer, place the electrode cover and tighten screws.
- It is strongly recommended that after replacing the electrode, electrode stabilize and ARC calibration should be done (operations are described below), or else splicing loss and strength cannot be assured.





Chapter 9 Other Functions and Applications

9.1 Records storage

Max. 20000 splice results can be stored. The storage contents is varied from splice modes to splice modes.

Display of splicing records

- The storage results can be displayed in fusion splicer.
- Enter into Splice Record and choose Show Splice Record.

Delete splicing records

- Select Delete Splice Record, input password and press Enter to delete all splice records.

Cancel data storage

- If the user does not want to store the splicing records, please press the button

ON in Stored Records.

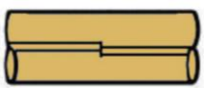
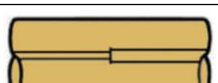
9.2 System settings

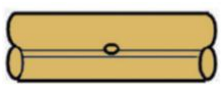
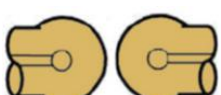
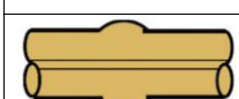
Parameter	Description
Buzzer	Set the turn on/off switch.
Temperature unit	Set the display way of temperature.
Automatic heating	If select [ON], when fiber is put into heat tanker, it will automatic start to heat.
Language	Select the operating language.
Calendar	Set system time.
Password	To enter some special menu, the factory sets the initial password [000000]. If user forgets the password he set, please contact local agent.
Electrode use reminder	There will be a reminder [please change the electrode bar] when the electrode discharging times exceed the set parameter. And it is

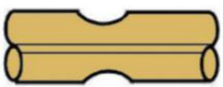
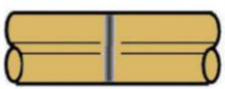
	recommended to set it as [2000] times.
Electrode use warning	When the discharging times exceed the set data, there will be warning after turning-on [must change the electrode bar]. and it is recommended to set the parameter as [3000] times.
Turn off the monitor automatically	If without any operations, monitor will be turned off automatically within 180 seconds (user can change the time) to avoid loss of electricity. When display screen turns off, the LED indicator which next to the button of Turn on/off will flicker, and screen can be opened again by pressing any keys.
Turn off automatically	If without any operations, monitor will be turned off automatically within 30 minutes (user can change the time) to avoid loss of electricity.

Chapter 10 Operation Faults and Solutions

10.1 Excessive Splicing Loss and Solutions

Image	Definition	Reason	Solution
	Fiber core axial deviation	There is dust on the V-groove or fiber clamp.	Clean V-groove and fiber clamp.
	Fiber core angle error	1) There is dust on V-groove or fiber clamp. 2) Poor quality of fiber end face.	1) Clean V-groove and fiber clamp. 2) Check the fiber cleaver working state.
	Fiber core bending	1) Poor quality of fiber end face. 2) Low discharging strength or short discharging time.	1) Check the fiber cleaver working state. 2) Enlarge [discharging strength] and/or [discharging time].
	Fiber diameter mismatch	Discharging strength too low.	Enlarge [discharging strength] and/or [discharging time].

	Dust combustion	1) Poor quality of fiber end face. 2) Dust is not cleaned or cleared when cleaning the fiber or discharging.	1) Check the fiber cleaver working state. 2) Clear the fiber or increase the [cleaning discharging time].
	Bubble	1) Poor quality of fiber end face. 2) Low discharging strength or short discharging time.	1) Check the fiber cleaver working state. 2) Enlarge [discharging strength] and/or [discharging time].
	Fiber separation	1) Fiber pushing is too small. 2) High discharging strength or long discharging time.	1) Perform [ARC calibration] maintenance. 2) Reduce [discharging strength] and/or [discharging time].
	Too thick	Fiber pushing is too big.	Reduce [overlap amount] and execute [ARC calibration].

	Too thin	1) Discharging strength not suitable. 2) Some discharge parameters are not suitable.	Adjust [splicing discharging strength] [discharging time] or increase [overlap amount].
	Splicing line	Some discharge parameters are not suitable.	Adjust [splicing discharging strength] [discharging time] or increase [overlap amount].

Attention: when splice different types of fibers (different diameter) or multimode fiber, sometimes there will be an upright line on the splicing point, we call it [splicing line], this doesn't influence the splicing quality (splicing loss and splicing strength).

10.2 Common error and solutions

When using fusion splicer, if there is error reminder, please refer to the following solution. If problems still cannot be solved, then please contact the distributor for help.

Error message	Reason	Solution
Left/right fiber place error	The fiber end-face is placed on the electrode centerline or beyond it.	Press RESET, and set the fiber and end-face between the electrode centerline and the V-groove edge.
Pushing motor surpass limit	The fiber is not correctly placed at the bottom of the V-groove.	Press RESET, and put the fiber correctly.
Fiber end face in touch	1) The value of overlap is set too low. 2) Motor is not calibrated.	1) Adjust [overlap] parameter. 2) [Motor calibration] maintenance.
Fiber tracking failed	1) The fiber is not put correctly at the bottom of the V-groove. 2) The fiber is not located in the camera's field of view. 3) The cleaved length (bare fiber part) is too short.	1) Press RESET and replace the fiber correctly at the bottom of the V-groove. 2) Check the position of stripped fiber on the fiber cleaver. 3) Check the cleaved length.
Cleave angle abnormal	1) Bad quality of fiber end-face.	1) Prepare fiber again. If problem remains, check the condition of the blade.

	2) [Clean angle limit] is set too low.	If the blade is worn, rotate the blade. 2) Set the [Clean angle limit] to a proper value. (standard 3.0°)
Core angle abnormal	1) [Clean angle limit] is set too low. 2) There is dust on V-groove or fiber clamp.	1) Set the [Clean angle limit] to a proper value. (standard 1.0°) 2) Clean the V-groove and fiber clamp, and prepare the fiber and put it again.
Fiber is dirty	1) Dust or dirt is on the fiber surface. 2) Dust or dirt is on the objective lens. 3) [Clean ARC] time is too short.	1) Completely prepare the fiber again. 2) Clean the lens and execute [dust checking], clean the lens if dust or dirt exists. 3) Set the [Clean ARC] time to 180ms.

10.3 Common faults and solutions

Fault	Solution
Press ON/OFF key, cannot turn on/off the machine	Press the ON/OFF key for long time till the LED lights flickers, release the key, fusion splicer shut off.

Full battery but can only do several splices	1) When the memory effect occurs when the battery is reduced or after a long period of storage, the battery should be completely let go, and then recharge the battery. 2) Battery worn, change the battery. 3) Use the machine under too low temperature.
Splicing loss is big	1) Clean the V-groove and fiber clamp. 2) Replace the electrode bar, ARC calibration and electrode stabilize. 3) Cleaving angle of the fiber, discharging condition and cleaving state will influence the splicing loss.
The monitor is suddenly turned off	If without any operations, monitor will be turned off automatically within 180s to avoid loss of electricity. When display screen turns off, LED lights next to the “turn on/off” key will flicker, and screen can be opened again by pressing any buttons.

The splicer suddenly shut down	The splicer turned off automatically when the machine is set for automatic machine shutdown (default 30 minutes) without any operations.
Fiber identification errors under AUTO mode	AUTO mode only for standard SM, MM, NZ optical fibers. When splice special fibers, AUTO mode may not recognize correctly.
The estimated loss is different from the real loss	1) The estimated loss is evaluated just for reference. 2) The optical components needed to be cleaned.
Heat shrinkable tube doesn't shrink completely	Extend the heating time.
How to cancel heating	If user want to terminate the heating, press HEAT button, then the LED light will turn off.
The heat shrink tubing is stuck in the heating tank after heating	Remove the heat shrink tubing with a thin cotton swab or soft bar.
After discharge calibration, the discharge intensity did not change	The discharge calibration changes the internal condition parameters, not the discharging strength.

Forget to put fiber when fiber is needed to be put in the maintenance	Pressing RESET button is useless under this circumstance. Please open the shield cover, put the cleaved fiber into V-groove and press Set to execute.