

iFiber iF-08 Model FIBER FUSION SPLICER OPERATION MANUAL



Before using the machine, please read this manual carefully

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Preface

Thank you for choosing IFIBER fiber fusion splicer. This manual mainly includes instructions for the using and daily maintenance of the fusion splicer, as well as common problems and solutions. Before operating the machine, please carefully read the content of this manual and correctly follow the instructions in this manual.

If you would want to learn more product information, please visit our website: www.ifiber.com.tr



1 Instructions Before Usage

1.1 Safety and Warnings

- Please use the battery and adapter specified by our company. Do not place heavy objects on the power cord. Pay attention to heat sources nearby. Modified the power cord is prohibited. The use of an improper or damaged power cord may result in equipment failure, smoke, or electric shocks, or in more serious cases, fire, injury, or death.
- Do not use the optical fiber fusion splicer in high temperature, flammable and explosive environments (such as near gas stations). In this environments, discharge of the fusion splicer can lead to hazards such as explosions or fires.
- When liquid or foreign objects enter the machine, or smoke, odor, abnormal noise, etc., or the machine is strongly impacted, please turn off the fusion splicer immediately and unplug the AC power supply.
- Clean the surfaces of V-groove, reflector, display screen with a small amount of high purity anhydrous alcohol (purity >99%).

- The fusion splicer has been precisely calibrated and adjusted during production. Please handle the fusion splicer gently, try to avoid strong vibration and collision, and use the equipped carrying case for transportation and storage, Otherwise it may cause the machine to function improperly.



- Do not disassemble the fusion splicer and its accessories without authorization, especially any electronic components and mechanical devices inside the machine. Only authorized institutions can repair the fusion splicer.

- Note: optic



- Always wear protective glasses during operation to prevent fiber debris from entering the skin or eyes.

- Note: Do not touch the electrode rod under working conditions, it may cause personal injury.



Note: When replacing the electrode rod, please cut off the power supply before proceeding with relevant operations.

- After the heating process, remember to wait for the heat shrink sleeve to cool before touching to prevent burns caused by excessive temperature.



- Note: When using shoulder straps, please check whether the connection between the straps and the fusion splicer is secure, and whether the straps are severely worn to prevent fusion splicer damage and personal injury caused by the damage of the straps.



1.2 Machine Scrapping And Disposal

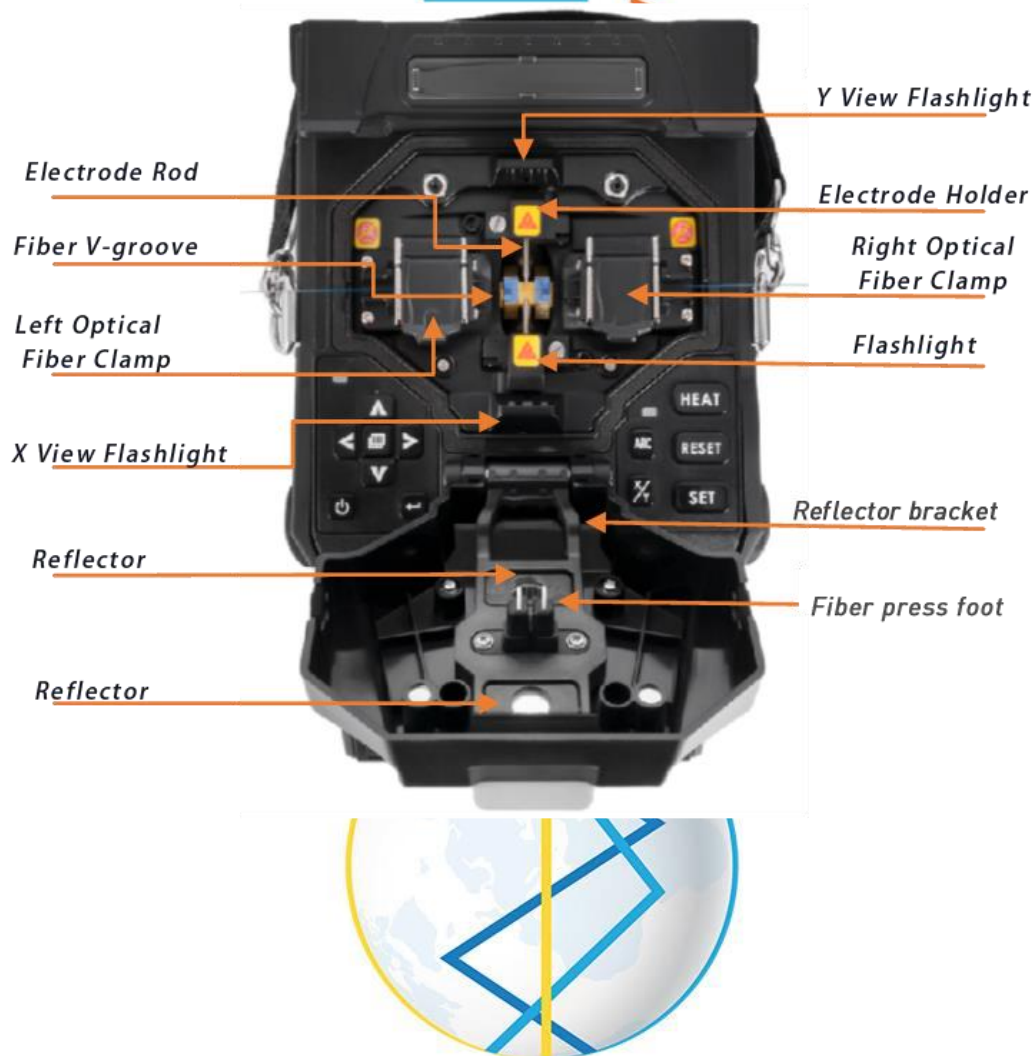
- **Chinese Standard:** according to the provisions of Decree No. 551 of the State Council of the State Council of the People's Republic of China, the disposal of waste electrical and electronic products refers to the dismantling of waste electrical and electronic products, from which substances are extracted as raw materials or fuels. The activity of reducing the quantity of waste electrical and electronic products generated by changing their physical and chemical properties, reducing or eliminating their harmful components, and ultimately placing them in landfills that meet environmental protection requirements, does not include product maintenance, refurbishment, and reuse as old goods after repair or refurbishment. If you use it in China, dispose of it according to relevant regulations.
- **EU Standards:** According to the standards 2002/96/EC issued by the European Parliament and Council, standards are formulated to maintain, protect, and improve environmental quality, protect the quality of human life, and use natural resources

with reasonable caution. If you are using in an EU country, please follow the EU requirements to transfer the scrapped products to relevant institutions for processing.

- **Other:** Please handle the waste electrical and electronic products according to local regulations, and handle them according to different material compositions.

2 Overview of Fiber Splicer

2.1 Appearance introduction





2.2 Keys and function

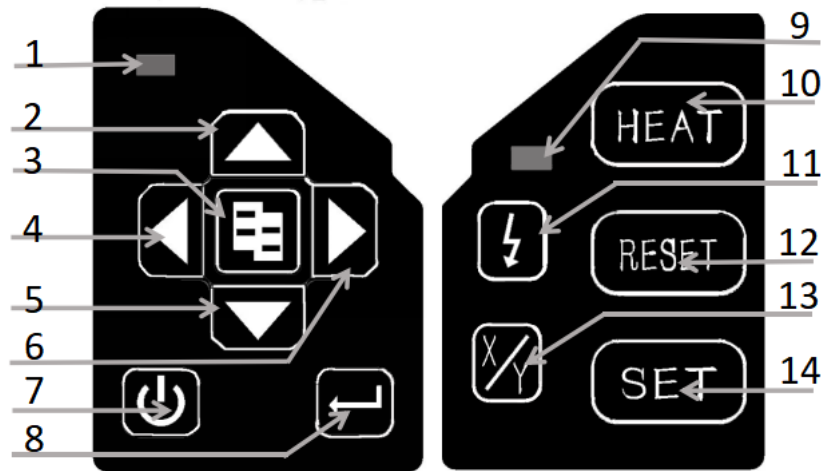


Figure2.1 Keypads

1 Power indicator	2 Up	3 Menu/Exit
4 Left	5 Down	6 Right
7 Power	8 Enter	9 Heating indicator
10 Heat	11 Arc	12 Reset
13 Switch View	14 Set	

Table 1-- Function of Button

2.3 Technical Parameters

Table 3 Technical Parameter

Applicable Fiber	G651/G652/G653/G655/G657/G654E etc.
Cladding Diameter	80 ~150μm
Coating Diameter	160~3000μm
Cleaved Length	10~16mm (coating diameter<250μm), 16mm (coating diameter:250~1000μm)
Typical Splice Loss	G651:0.01dB; G652:0.02dB; G653:0.04dB; G655:0.04dB; G657:0.02dB; G654E:0.02dB
Return Loss	> 60dB
Splicing Program	100 modes
Operation Mode	Manual/ Auto
Auto-Heating	Available
Splicing Time	6~12 seconds
Heating Time	20~26 seconds for 40mm and 60mm shrinkable sleeves
Fiber Magnification	320X(X or Y view), 160X(X and Y view)
Viewing Display	Dual high sensitivity camera, 4.3" HD color LCD touch screen
Data Storage	8000 groups fusion records
Loss Evaluation	Available
Tension Test	1.8 ~ 2.2N
Interface	GUI menu interface, easy for operation
Battery Capacity	Detachable 5200mAh Li-battery , typical 250 cycles splicing and heating
Power Supply	Adapter, input: AC100~240V(50/60Hz), output: DC11~13.5V
Electrode Life	More than 4000 ARC discharges, easy to replace
Terminal	USB 2.0 port, for software upgrading, records exporting
Operating Condition	Altitude: 0~5000m; Humidity: 0~95%; Temperature: -10°C~+50°C; Max wind: 15m/s
Dimension/Weight	165mm(L)×135mm(W)×140mm(H)(including rubber bumper)/2.02kg(with battery)

3 Detail of Splicing Operation

3.1 Power on

Install the battery or adapter, as shown in Figure 3.1.



Figure 3.1 Battery and adapter

installation

Long press and hold the power button on the keyboard until the power indicator light is on and the buzzer prompts, then release the button, as shown in Figure 3.2. The LCD screen of the fusion splicer lights up and entering the startup screen, and then the fusion splicer enters the work standby screen.



Figure 3.2 Work standby screen

3.2 Fiber End Face Preparation

Prepare two optical fibers, put one side into the heat shrink tube as shown in Figure 3.3.

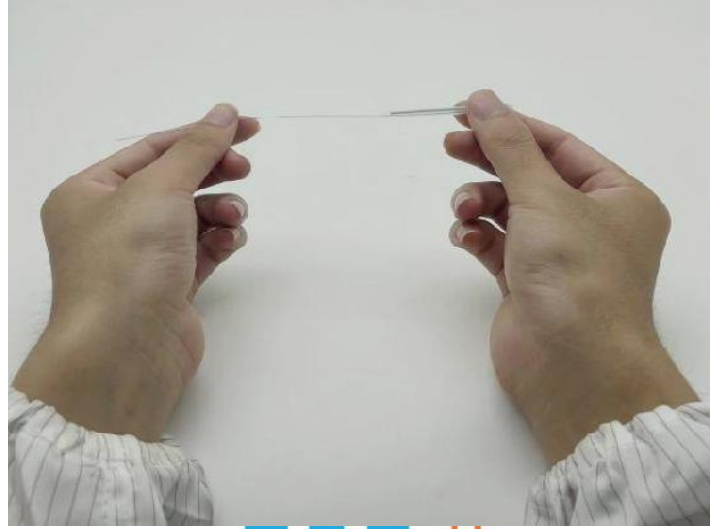


Figure 3.3 Heat shrinkable sleeve

The fiber coating of the bare fiber is stripped by the small hole of fiber stripper, with a length of 30 to 40mm, as shown in Figure 3.4. Use a cotton ball dipped in anhydrous alcohol (purity>99%) wipes off the remaining coating debris on the fiber surface, as shown in Figure 3.5.

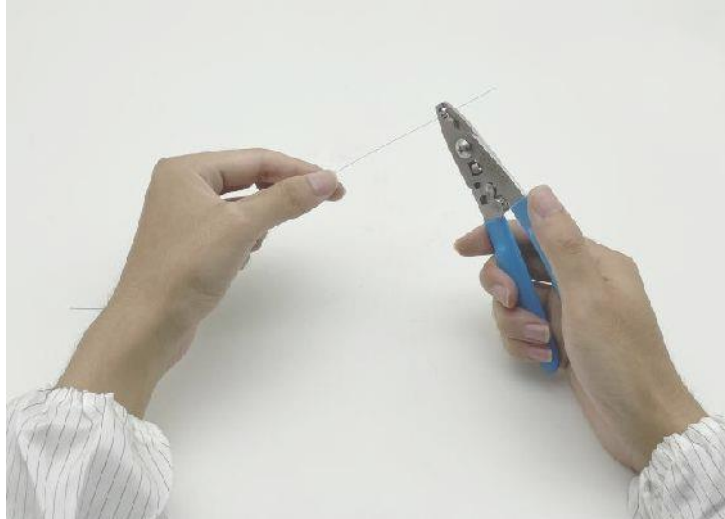


Figure 3.4 Remove fiber coating



Figure 3.5 Wipes off the remaining coating

Preparation of drop cable :

- The white protective layer of the fiber optic cable is stripped by the cable stripper, with a length of 40mm, as shown in Figure 3.6.
- The fiber coating is stripped by the small hole of fiber stripper.
- Use a cotton ball dipped in anhydrous alcohol (purity>99%) wipes off the remaining coating debris on the fiber surface, as shown in Figure 3.5.

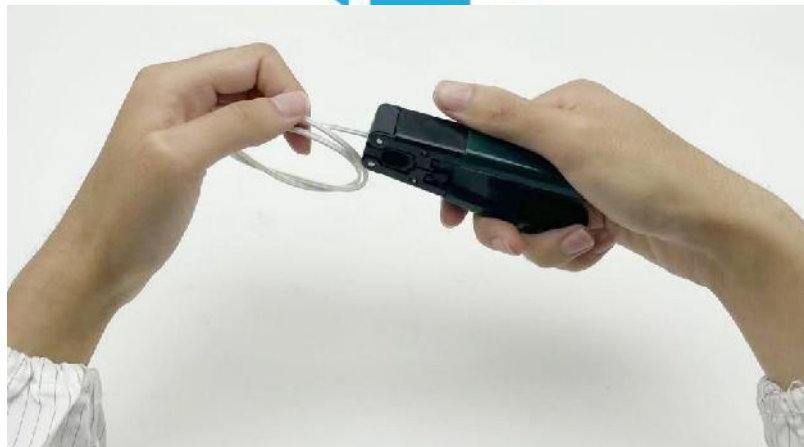


Figure 3.6 Preparation of drop cable

Preparation of patch cords:

- The yellow fiber optic protective sleeve of patch cords is stripped by the big hole of fiber stripper, a length of no less than 50mm.
- Kevlar scissors cut the Kevlar cable.
- The white protective sleeve of the fiber optic cable is stripped by the medium hole of fiber stripper.
- The fiber coating is stripped by the the small hole of fiber stripper.
- Use a cotton ball dipped in anhydrous alcohol (purity>99%) wipes off the remaining coating debris on the fiber surface.



Figure 3.7 Preparation of patch cords

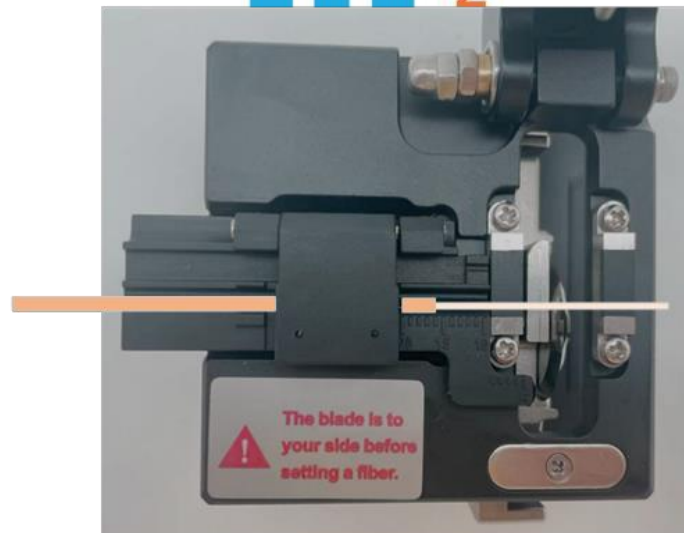


Figure 3.8 Fiber cleaving

Put the cleaned fiber into the cutter positioned groove, the edge of the fiber coating Align within the range "10-16" of scale ruler, as shown in Figure 3.7. Close the small pressure platen, the bare fiber must be put straight on the left and right rubber of the chopping block. Then close the large pressure platen, and push the cutter blade slider to the other end to cut off the fiber.

After cleaving, open the large pressure platen and the small pressure platen in turn, then carefully take out the optical fiber. Don't let the optical fiber touch any other objects to avoid damage or contamination of the end face of optical fiber. Take away the cut and broken fibers and put them in the waste fiber storage box (the broken fibers are extremely harmful to human health, please be sure to collect and dispose of the broken fibers uniformly). Then the second fiber is prepared in the same way.

3.3 Placing Fibers in Splicer

Open the windproof cover and fiber platens put the prepared fiber into V-groove through the locating slot. Make sure that the fiber end face should be located between V-groove edge and two electrodes as shown in Figure 3.9.

Please operate carefully and don't let the fiber end face touch any other object. Then close the large pressure platen to fix optical fiber, which should be placed horizontally in the V-groove, without upturned phenomenon. If clamping failed, you can lift fiber carefully and repeat the above operation until the fiber clamping is qualified.

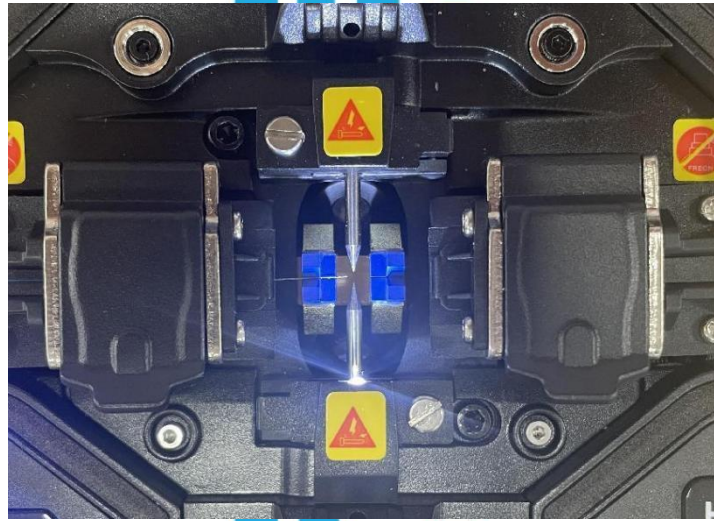
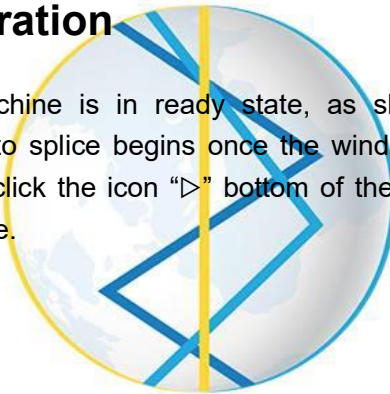


Figure 3.9 Fiber clamping

Similarly, prepare and clamp another optical fiber. Then, close the windproof and continue to observe the amplified fiber from the display. If the fiber end face is obviously uneven, tilt or damaged, please remove the fiber to cut again.

3.4 Splicing Operation

After clamping, the machine is in ready state, as shown in Figure 3.10. If in "Automatic" splice mode, auto splice begins once the windproof closed. If in "Manual" splice mode, user needs to click the icon "▷" bottom of the screen or press the "SET" button to run the splice routine.



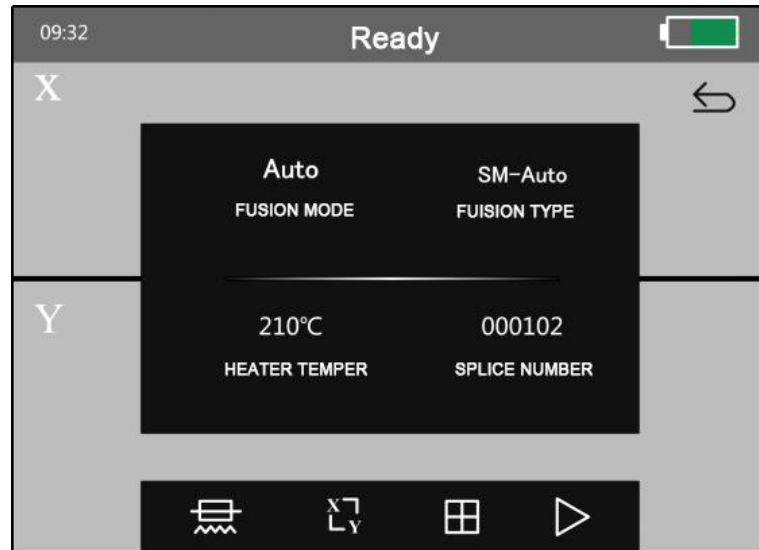


Figure 3.10 Ready interface

When the fusion splicer starts to splicing, it first drives the motor, which will promote both sides of fibers to the middle of the screen, judging the fiber end face to see if it meets the requirements. And display the fiber end face information on the screen in the form of angle. If qualified, turn to the next process, otherwise a tip of bad end face will show on the screen, a new fiber need to be prepared.

After meeting the set end face conditions, the pushing motor will further push the fiber to the position to be spliced, and the aligning motor precisely aligns the fiber. Finally, the electrode discharges to splice the fiber. After the welding is completed, the machine will give the estimated value of this welding loss and perform a tension test, as shown in Figure 3.11.



Figure 3.11 Completion of fusion splice

3.5 Tension Test

After the fiber optic fusion is completed, the propulsion motor will move in reverse and apply approximately 2.2N of tension to the fiber optic to detect the fusion strength of the fiber optic fusion joint. The software obtains tensile test results through images of optical fibers.

3.6 Heat Shrinkable

Open the windproof cover, large platen, take out the optical fiber gently, do not bend the optical fiber greatly to avoid the broken of fusion point. Move the heat shrink sleeve to the splice point, which is in the middle of the sleeve. Open the heater tank's cover, pull the optical fiber with both hands, put the heat shrinkable sleeve into the heating furnace, and the sleeve is located in the middle of the heating furnace, as shown in Figure 3.12.

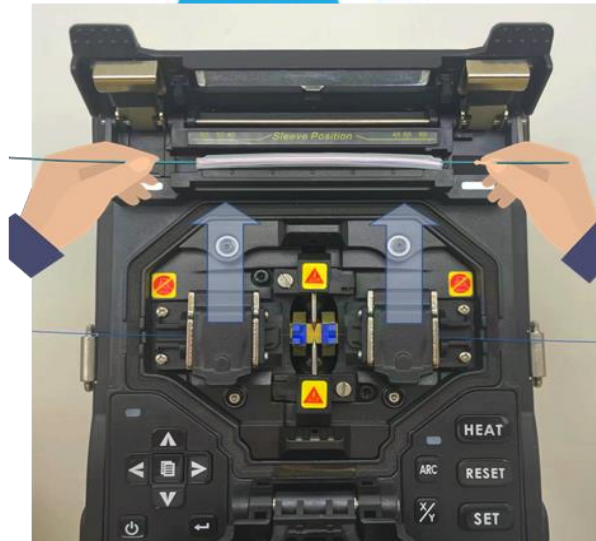


Figure 3.12 Shrinkable sleeves.

Close the heater's cover and the heater light is on, it starts to heat. Wait until the light is off, the heat shrinking is completed. The fiber heat shrinkable sleeves before and after heat shrinking from top to bottom, as shown in Figure 3.13.



Figure 3.13 Heat Shrinkable Sleeves

3.7 Cooling

Please pay attention that the temperature of the sleeve after heat shrinking is very high and needs to be cooled. Hang the cooling tray on the handle, so after the heating is completed, pull the optical fiber out of the heating furnace with both hands, put it into the cooling tray, wait until the sleeves cool to normal temperature, as shown in Figure 3.14.



Figure 3.14 Heat Shrinkable Sleeves cooling

4 Introduction of Menu

4.1 Work interface

The fusion splicer enters the work interface and displays standby mode.

The standby interface will display the current machine status and parameter information, as shown in Figure 4.1. This interface is divided into four parts: information area, video area, parameter area, and functional icon area.

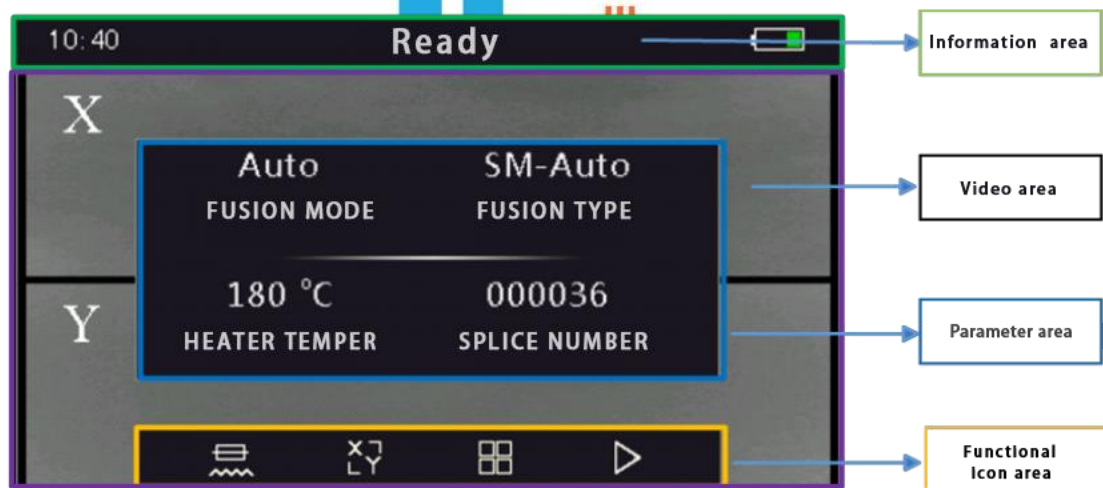


Figure 4.1 Work interface

- Information area: The information area displays information such as the time, battery capacity, fiber end angle, and loss evaluation .
- Video area: Two optical fiber images are displayed in the view area. Users can directly see the enlarged optical fiber and judge whether the optical fiber status, splicing process and result of splicing process .

- Parameter area: The machine status area displays the current fusion mode, fusion type, heater temperature, and splicing numbers. Select the corresponding option to quickly enter the interface for modifying parameters.
- Functional icon area: The function icon area provides touch function button icons, as shown in Figure 4.2.



Figure 4.2 Functional icon area

4.2 Menu

Press the menu button or the menu icon on the screen in standby mode to enter the main menu interface. The menu interface of the fusion splicer is including a total of 6 functional icons corresponding to mode, settings, functions, maintenance, information, and workbench, as shown in Figure 4.3.

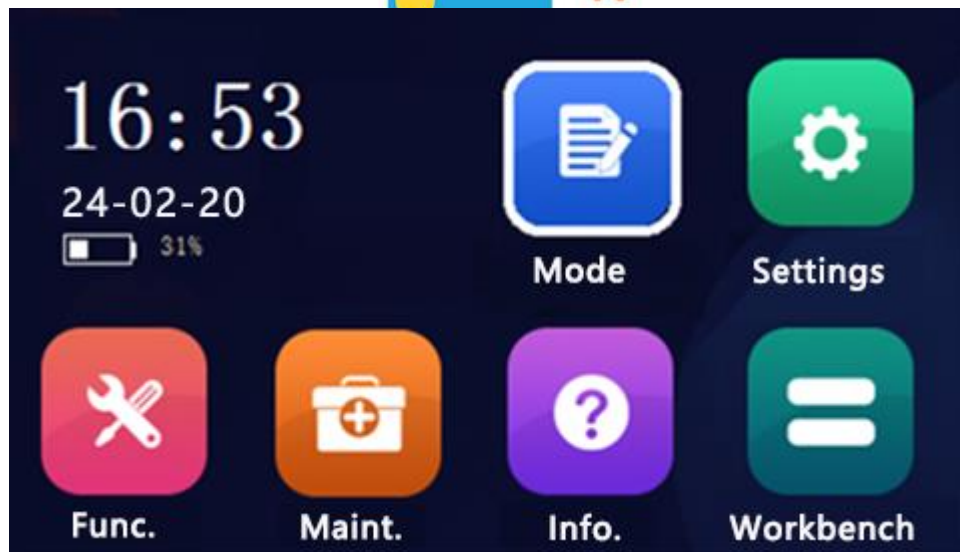


Figure 4.3 Menu interface

On the main menu interface, use the arrow keys to switch between various icons, press the enter key to enter the corresponding sub menu, or directly touch the icons. Press the menu button or workbench icon to return to the standby interface.

4.3 Mode

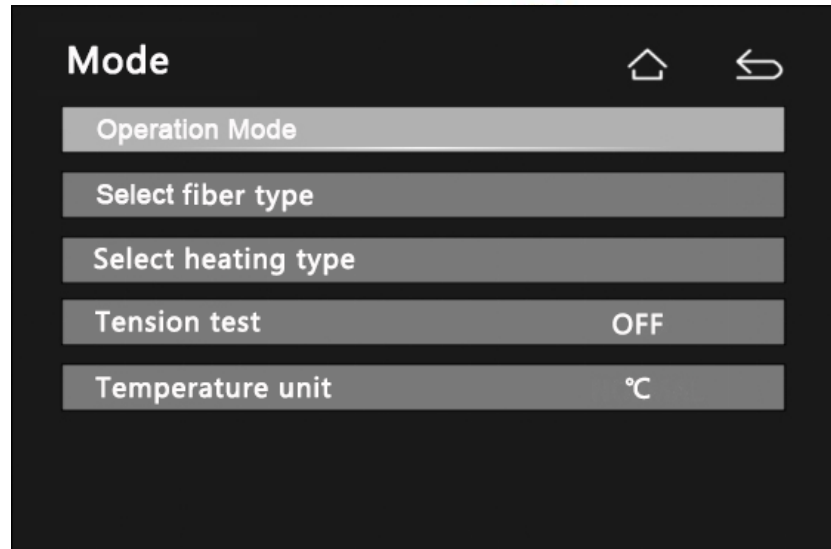


Figure 4.4 Mode

Mode menu is including operation mode, select fiber type, select heating type, tension test, temperature unit, as shown in Figure 4.4.

4.3.1. Operation Mode

The operation mode is the process method of the fusion splicer splicing optical fibers, which consists of the following parameters, as shown in Figure 4.5

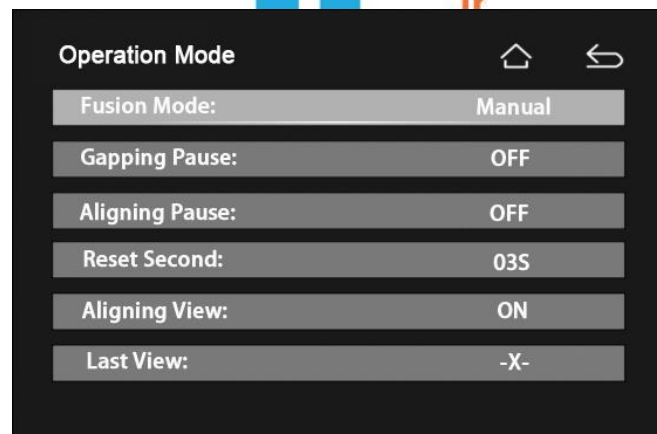


Figure 4.5 Operation mode

➤ Fusion Mode:

There are automatic and manual modes. Under the automatic mode, the fusion splicer starts to run the fiber splicing program automatically, after closing the windshield in the standby interface. Under the manual mode, the user needs to manually press the "SET" button or touch the icon ▷ to start the fiber splicing program.

Press the enter button or touch this column, the parameter value will be switched between "Auto" and "Manual".

➤ Gapping Pause:

<http://www.ifiber.com.tr>

info@ifiber.com.tr

When the fiber splice, the motor will push the optical fiber to the set gap position. The program suspends operation and waits for further operation by the user. To continue splicing, press "SET" button or ▷ at the bottom of the screen.

Press the enter button or touch this column, the parameter value will be switched between "ON" and "OFF".

➤ Aligning Pause:

After aligning the core of optical fiber, pause the program and press the "SET" button or touch the icon ▷ to proceed with the next fusion operation.

➤ Reset Second:

After the optical fiber is spliced, open the windshield and wait for a period of time for the motors back to initial position. The waiting time is "reset second".

Press the arrow keys on the screen to change the parameter value.

➤ Aligning View:

When this function is turned on, during the core adjustment process, the fiber optic images in the X and Y fields of view will be adjusted to the center of the screen. When this function is turned off, during the core adjustment process, the position of the optical fiber in the screen is random.

Press the enter button or touch this column, the parameter value will be switched between "ON" and "OFF".

➤ Last View:

When splice completed, the view displayed on the screen can be in the X or Y field of view, or compressed up and down in X/Y, or compressed left and right in X/Y.

4.3.2. Select fiber type

The fusion parameters are divided into the following categories based on the applicable fiber type, arc adaptation, and fusion speed, as shown in Figure 4.6.

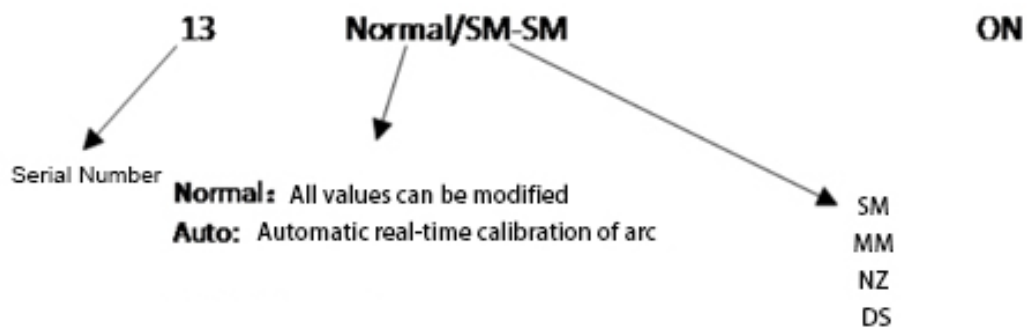


Figure 4.6 Meaning of parameter array names

The fusion process requires various parameters to control the power of the arc, discharge time, motor propulsion distance, etc. The physical meaning of the fusion parameters is shown in Figure 4.7.

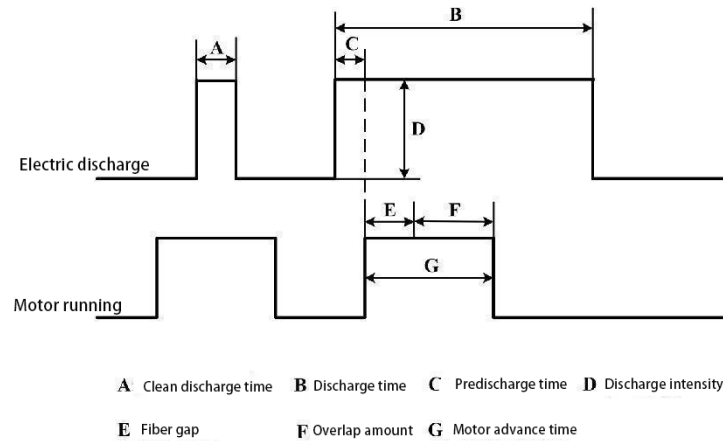


Figure 4.7 Physical significance of each fusion parameter

To change the current fusion parameter group, press the arrow key to select the parameter group to be modified, and press the enter key to enter the parameter setting menu, or directly click the option to set parameter group to enter the parameter setting menu, as shown in Figure 4.8.

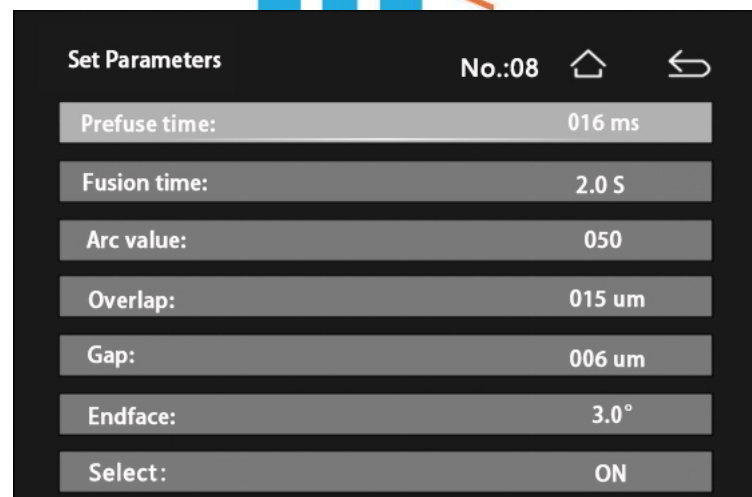


Figure 4.8 Set parameters

Functions of each parameter:

➤ Prefuse time:

After the fiber is forwarded to the fusion splicing position and aligned, the fiber is preheated by short-term discharge. This is prefuse time. The single-mode time is 16ms, and the multi-mode time is 25ms. It is not recommended for new users to modify this parameter value. Press the keyboard or the direction keys on the screen will increase or decrease the parameter value.

➤ Fuse time:

After the pre-discharge, the fusion splicer starts the fusion discharge. It is called fuse time. The length of this period is 2.0 seconds for both single-mode fiber and multi-mode fiber. It is not recommended for new users to modify this parameter value.

➤ Arc value:

It refers to the current intensity of the discharge arc when machine starts to splice. A

higher current value corresponds to a stronger arc, resulting in higher temperature and more serious fiber ablation.

➤ **Overlap:**

When the optical fiber is spliced, the high temperature generated by the arc melts the optical fiber, and the optical fiber needs to be pushed forward to make the optical fiber contact and fuse. The forward advance distance of the optical fiber is the overlap.

➤ **Gap:**

Before the fiber is spliced and the arc is released, the two fibers need to run to a relatively close position. The distance between the end faces of the two fibers is the gap.

➤ **Endface:**

It is the angle between the end face of the left and right fiber and the vertical direction in the X and Y two-way fiber images. The maximum end face angle refers to the maximum allowable end face angle when judging the fiber end face. If the face angle judgment always fails, the value of this parameter can be appropriately increased, but the splicing loss may be increased.

➤ **Select:**

It refers to whether the parameter group is the current splicing parameter group. Clicking on this item will select the parameter group as the current parameter.

4.3.3. Select heating type

Select heating type can set the heater temperature, heating time, and pre-heat .

- **Heater temperature:** This option can set the temperature of the heating furnace, with a heating temperature range of 150-220 °C and a default temperature of 180 °C.
- **Heating time:** This option can set the time of the heating furnace. The heating time range is between 15-90S, with a default value of 30 seconds.
- **Pre-heat:** After this function is turned on, the heater warms up to 100 degrees before operation, accelerating the heat shrinkage efficiency.

4.3.4. Tension test

When this option is turned on, once the fiber is spliced, a pulling force of 2 N will be applied to the fiber to test the quality of the splicing. If the fiber is pulled and broken, it indicates that the fiber splicing has failed. If the fiber is well fused, the tensile test will be displayed: OK. If you press the Run key again, "Please reposition the fiber" will appear. Press the enter button , the parameter value will be switched between "ON" and "OFF"

4.4 Settings

The "Settings" menu is used to set the data including the camera brightness, language, lighting LED, beep, auto power-off, calendar, as shown in Figure 4.9.

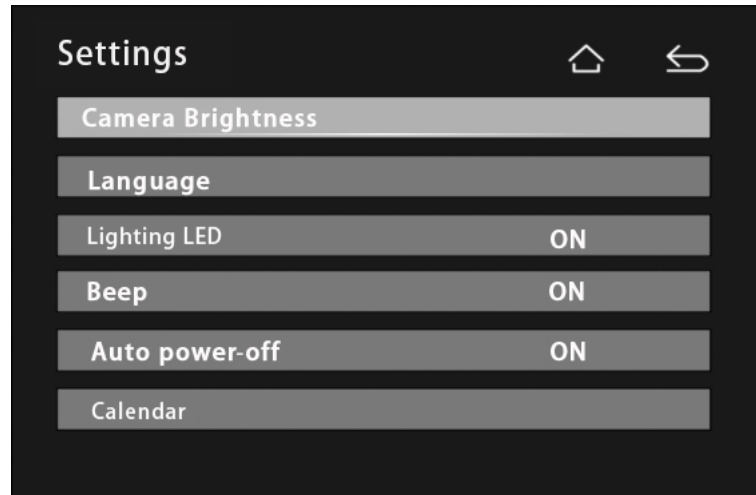


Figure 4.9 Settings menu

4.4.1. Camera Brightness

The camera brightness menu can set the brightness of the imaging lamp, as shown in Figure 4.10.

In this interface, press the up and down buttons , or click the left or right button on the screen to change the brightness value of the light. Press the enter button or click on the "X" or "Y" button on the screen to switch between the setting gain X and Y cameras.

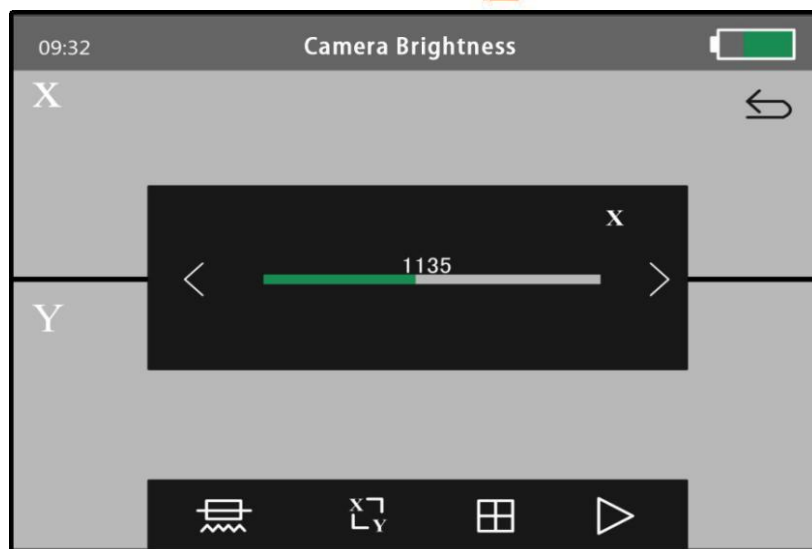


Figure 4.10 Camera brightness

4.4.2. Language

Language shows the current software in language usage, as showed in Figure 4.11.

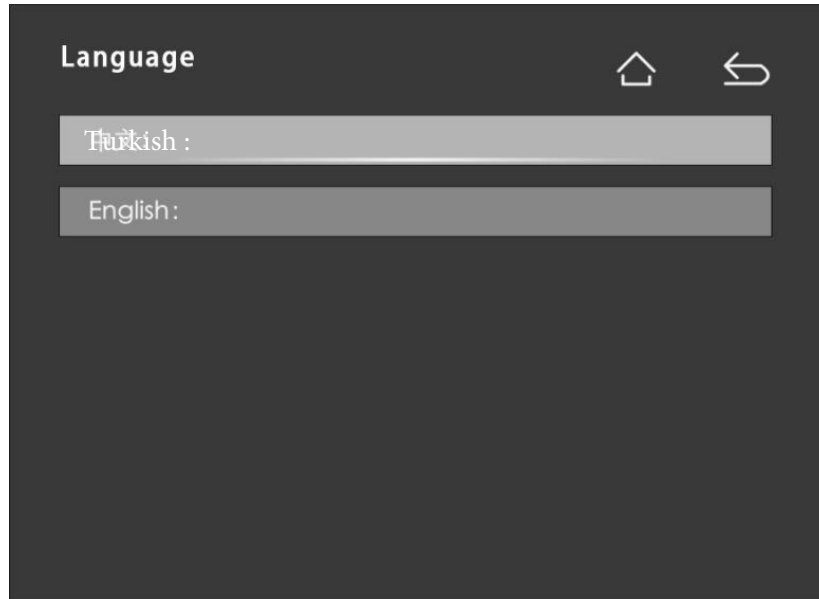


Figure 4.11 Language

- Turkish: After selection, the software interface will be displayed in Turkish;
- English: After selection, the software interface will be displayed in English;

4.4.3. Lighting LED

This option is turned on, and the lighting LED is turned on to illuminate the optical fiber. It is convenient for the operator to put the fiber in the designated position in the case of poor lighting.

4.4.4. Beep

When the option is turned on, pressing the button or touch the screen, or fusion process node, there will be a beep sound. When it is off, there will be no sound in such operation.

4.4.5. Auto power-off

When the option is turned on, if there is no operation within the specified time, the machine will automatically turn off.

4.4.6. Calendar

The calendar menu is used to adjust the display time and date of the fusion splicer. Press the enter button to enter the date time adjustment interface, as shown in Figure 4.12.

The first method: To adjust an option, press the arrow keys to move the cursor to the option, press the up and down keys to adjust the value of the option, and press the enter key to lock the option.

The second way: touching screen. When the left physical buttons is invalid, touch screen control.

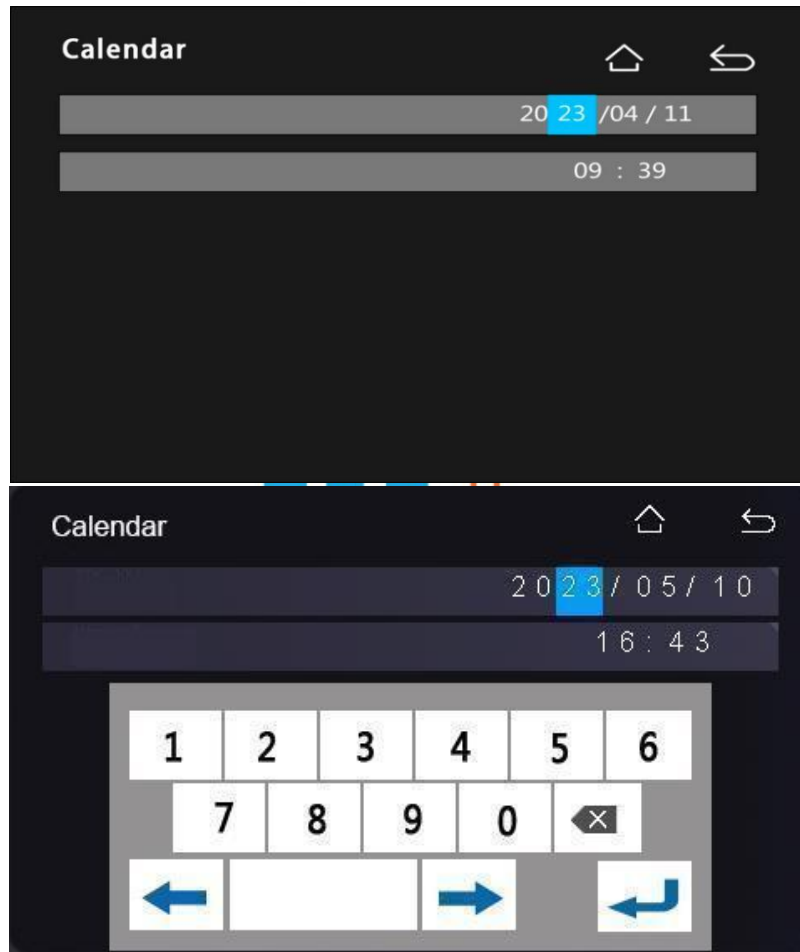


Figure 4.12 Calendar

4.5 Func.

The function menu lists some functions of the fusion splicer, such as motor push test, adjust CMOS View, software upgrading , as shown in Figure 4.13.

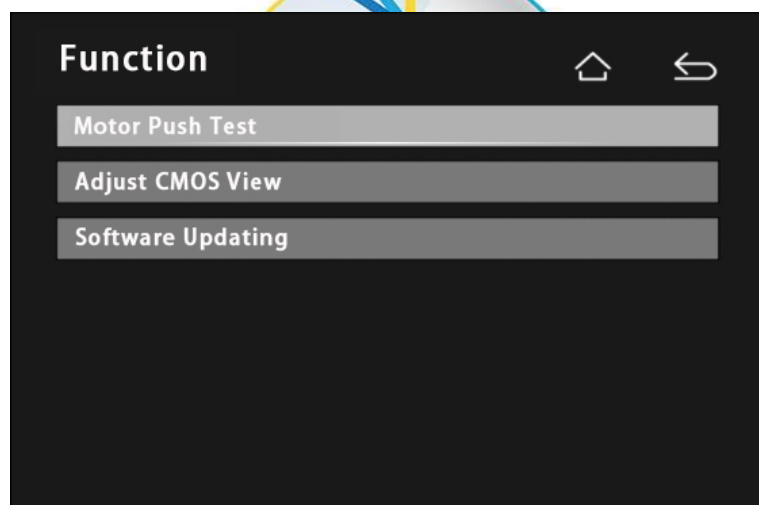


Figure 4.13 Function menu

4.5.1. Motor Push Test

The motor push test is used to measure the fiber optic propulsion distance during fusion splice, in order to verify whether the motor and propulsion structure are working properly.

Press the enter button or click the option to enter the test interface, completely follow the steps of splicing the optical fiber, cut and clamp the optical fiber, and press the enter button to start the test. The results will be shown after the testing finished, as shown in Figure 4.14.

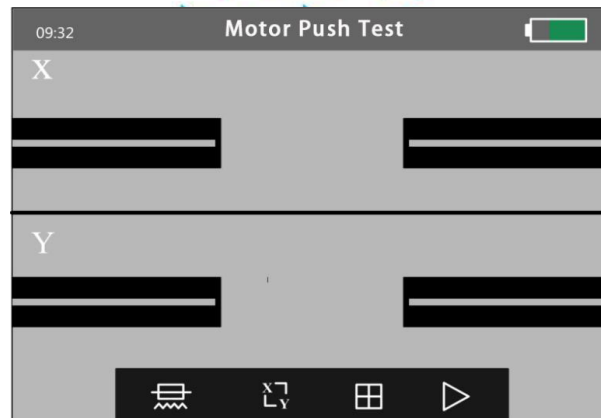


Figure 4.14 Motor push test menu

4.5.2. Adjust CMOS View

Please refer to Section 5.7 Adjust CMOS View for details.

4.5.3. Software Updating

This function is used to upgrade software in the machine. After the U disk with upgrade file inserted into USB port, choose this option and press the enter button or click the option to upgrade. The program starts to check if there is a USB drive inserted into the USB port, and then detects the upgrade file inside the USB drive. Once found, the upgrade starts, otherwise it will remind error. After upgraded, and users need to restart the fusion splicer.

4.6 Maint.

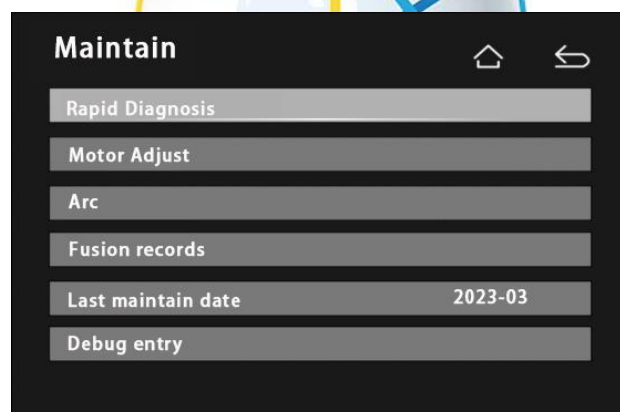


Figure 4.15 Maintain menu

The Maintain menu consists of rapid diagnosis, motor adjust, Arc, fusion record, last maintain date, debug entry, as shown in Figure 4.15.

4.6.1. Rapid Diagnosis

Rapid diagnosis is used to check whether the image, LED brightness, ARC and other functions of the fusion splicer are normal. Press the enter button or click the option, the fusion splicer will adjust the brightness of the imaging lamp, the exposure value of the CMOS image, and the arc discharge one by one, and make a simple diagnosis of the fusion splicer according to the feedback.

4.6.2. Motor Adjust

The motor adjustment function allows customers to directly manually drive the motor, which includes left and right pushing motors, and left and right aligning motors.

After installing the optical fiber and entering this menu, the interface is shown in Figure 4.16.

Press the enter button on this interface to switch between the left and right motors. Press the up or down button to drive the aligning motor to move up or down. For the left pushing motors, press the left or right button to move the motor backward or forward. For the right pushing motors, press the left or right button to move the motor forward or backward.

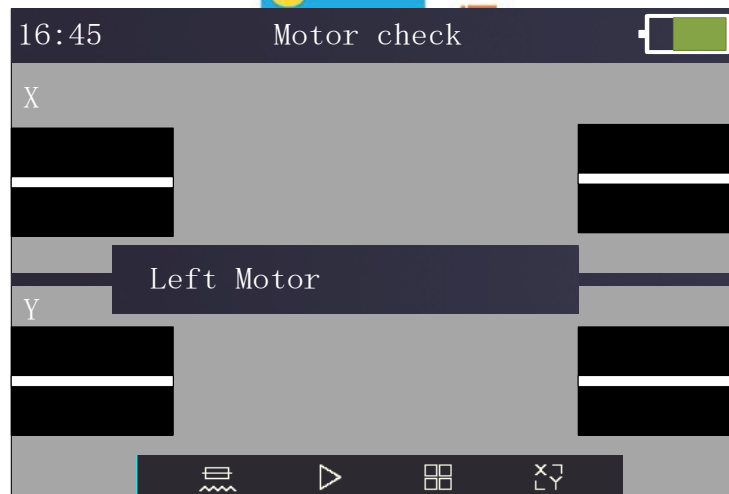


Figure 4.16 Motor adjust

4.6.3. Arc

Arc includes the manual arc calibration, auto arc calibration, replace electrodes, electrodes stabilization, as shown in Figure 4.17.

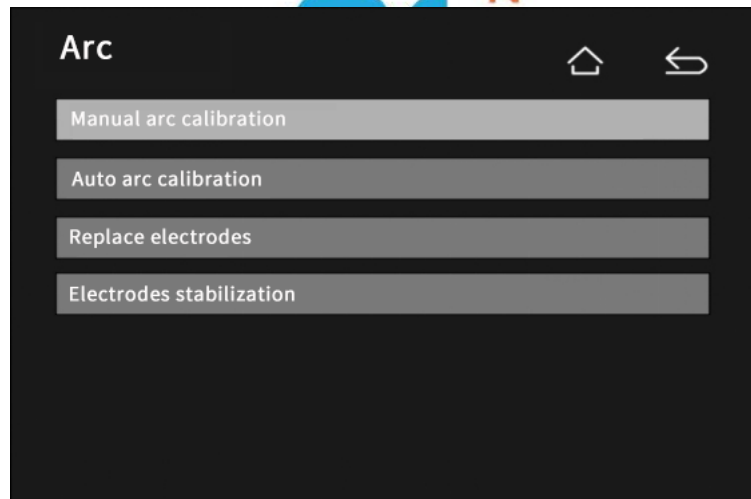


Figure 4.17 Arc

4.6.3.1 Manual arc calibration

Please refer to Section 5.4.1 for details.

4.6.3.2 Auto arc calibration

Please refer to Section 5.4.2 for details.

4.6.3.3 Replacing Electrodes

Please refer to Section 5.5 for details.

4.6.3.4 Electrode stabilization

Please refer to Section 5.6 for details

4.6.4. Fusion records

Fusion records includes current fusion, fusion numbers, fusion records, export records, clear fusion records, as shown in Figure 4.18.



Figure 4.18 Fusion records

4.6.4.1 Current fusion

This option shows current total Arc discharge number of discharges from the last clear to the last discharge.

4.6.4.2 Fusion numbers

This option shows the total number discharge times from the factory to the last discharge.

4.6.4.3 Fusion records

Fusion records store the details of each optical fiber fusion. A total of 8000 sets of fusion records can be stored. Press the confirm button to enter the maintenance menu and select the fusion records menu. Each page displays 6 records in fusion order. Press the left or right button to turn the page and display. Press the confirm button to enter the selected fusion record, and view the detailed parameters, as shown in Figure 4.19.



Figure 4.19 Fusion records list

4.6.4.4 Export records

The option is used to export the fusion records memories in the machine. After the U disk inserted into the USB port, choose this option and press the key $\leftarrow$ or touch the option to confirm fusion records export. The program starts to detect whether there is U disk inserted in the USB port, and then starts to write the record content into it after finding the record file. If there is no record file, the program will prompt an error.

Note: The file format of the U disk is FAT32, create a non-empty RXXXXX.txt file in the root directory of the U disk.

4.6.4.5 Clear fusion records

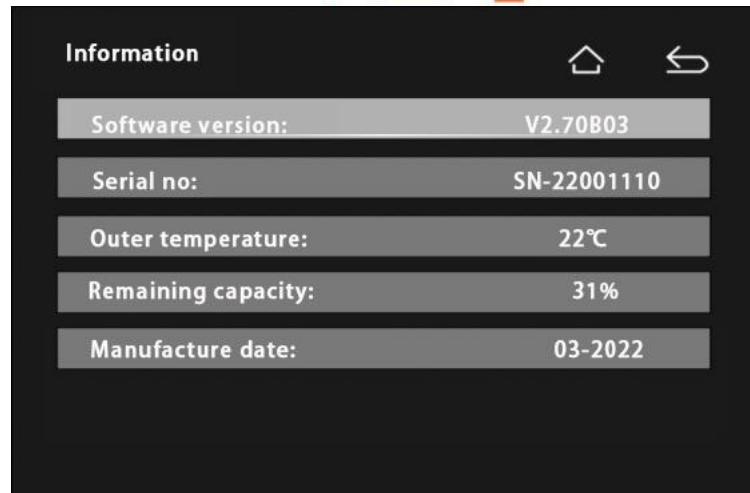
This option is used to clear fusion records stored in the machine.

4.6.5. Last maintain date

The date of delivery or the date of maintenance when the repair is returned.

4.6.6. Debug entry

This is only for authorized engineer maintaining splicer use.



4.7 Information

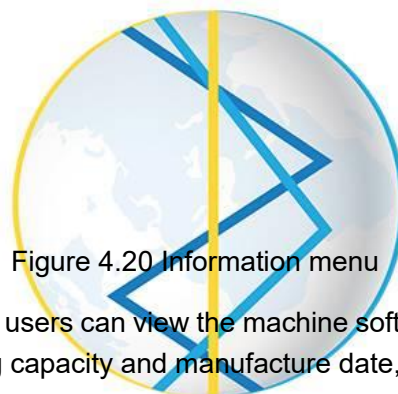


Figure 4.20 Information menu

In the information menu, users can view the machine software version, serial number, outer temperature, remaining capacity and manufacture date, as shown in Figure 4.20.

5 Routine Maintenance

5.1 Cleaning V Groove

The V-groove is a V-shaped notch on the ceramic substrate. It is easy to accumulate dust, which leads to unstable optical fiber movement and big loss of fusion. Therefore, the V-groove should be cleaned regularly.

The following is the way of cleaning the V groove:

- (1) Cut and prepare a fiber optic, thread the bare fiber into a V-shaped groove, and remove pollutants from the groove shown in figure 5.1.

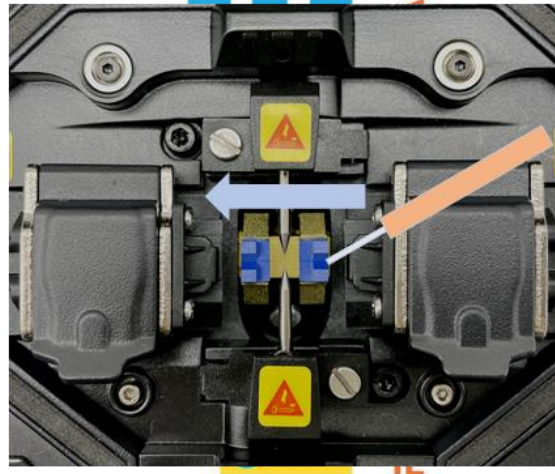


Figure 5.1 remove pollutants from the groove

- (2) Use a cotton swab soaked in alcohol to clean the upper surface and bottom of the V-shaped groove, and finally wipe the alcohol in the V-shaped groove with a dry cotton swab as shown in Figure 5.2. Be careful not to leave lint.

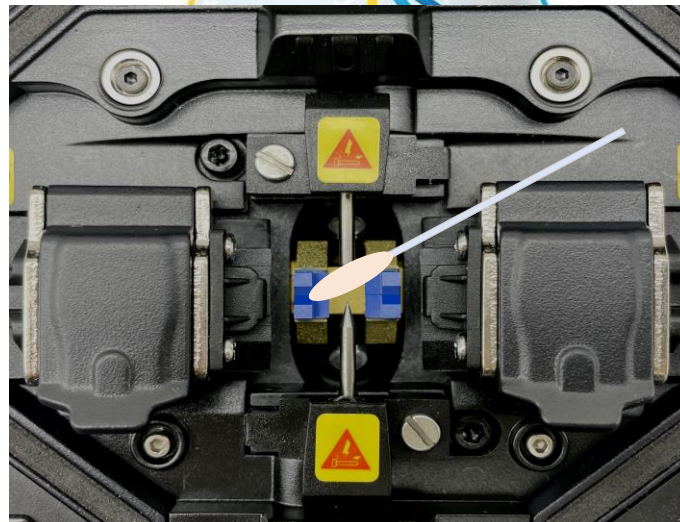


Figure 5.2 Clean the surface of the groove

5.2 Cleaning Fiber Clamp Chips

If there is dust on the fiber clamp chips, it will cause unstable fiber clamping and affect the quality of splicing. Therefore, the fiber presser foot should be cleaned regularly. The cleaning method as follows:

Open the windproof cover and then use the cotton dipped in alcohol to clean the surface of the presser foot. When cleaning, do not use the cotton swab to repeatedly wipe it back and forth, but to wipe it in one direction. The user needs to spin the cotton swab to keep the unused cotton facing the presser foot, and waits for the alcohol to evaporate.

5.3 Cleaning Objective Lens

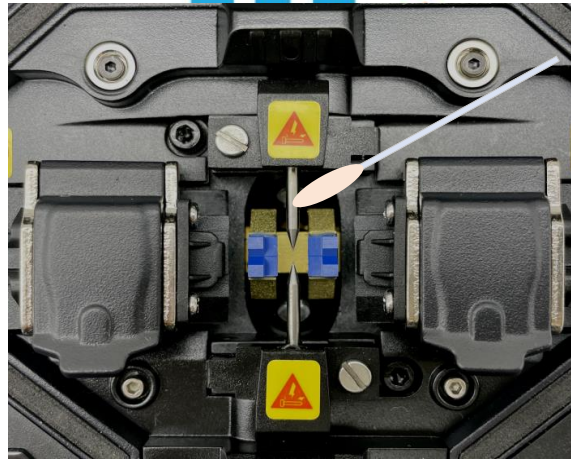


Figure 5.3 Clean fiber clamp chips

The microscope is the core component of the optical system of the fusion splicer, and its optical surface must be kept clean, and the objective lens should be cleaned regularly. The cleaning method as follows:

Wipe the objective lens with a dry cotton swab. The cotton swab spirals from the center of the lens to the edge, all the way out of the edge of the lens, while the cotton swab rotates around itself.

5.4 Arc

Arc is a type of plasma, and its morphology and stability are influenced by many factors, such as electrode rods, temperature, pressure, etc. Although the fiber optic fusion splicer can dynamically adjust the power of the arc based on the light intensity during fusion, this adjustment is based on statistical results and cannot quickly respond to sudden changes in the external environment. In addition, changes in discharge intensity caused by electrode wear and fiber debris adhesion cannot be automatically corrected,

and the discharge center position sometimes moves left or right. In this case, the discharge center of the electrode will shift relative to the position of the fiber fusion, and discharge correction is needed to solve these problems.

The principle of arc calibration is to use the current fusion parameter group to ablate the optical fiber after the fiber is pushed and adjusted, determine the power of the arc based on the situation of the fiber being ablated, and change the discharge current intensity until the test results meet the requirements.

5.4.1 Manual arc calibration

Select this option into the interface, as shown in Figure 5.4. According to splicing procedure, cleaving and clamping the fiber. And then press the enter button or click the start option ,the calibration program starts to run. When the test result shows green, the calibration is successful.

According to the test results, set the arc value in splicing parameter group. Repeat the above steps until the arc appears green on the display.

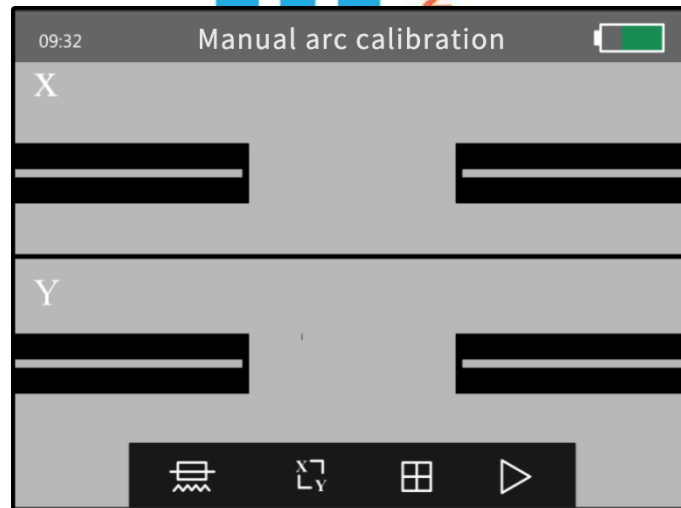


Figure 5.4 Manual arc calibration

5.4.2 Auto arc calibration

Select auto arc calibration, the screen as shown in Figure 5.5. Cleave and clamp the fiber according to the steps of splicing fiber, press the enter button or click the start option, the calibration program starts to run and the test result is given.

The auto arc calibration will automatically change the discharge current in the parameters according to the test results. If it shows "Arc calibration complete", the current value is an appropriate current value, if it displays "Arc is too large or arc is too small", then restart prepare the fiber and test again until the test result shows "Arc Calibration Complete".

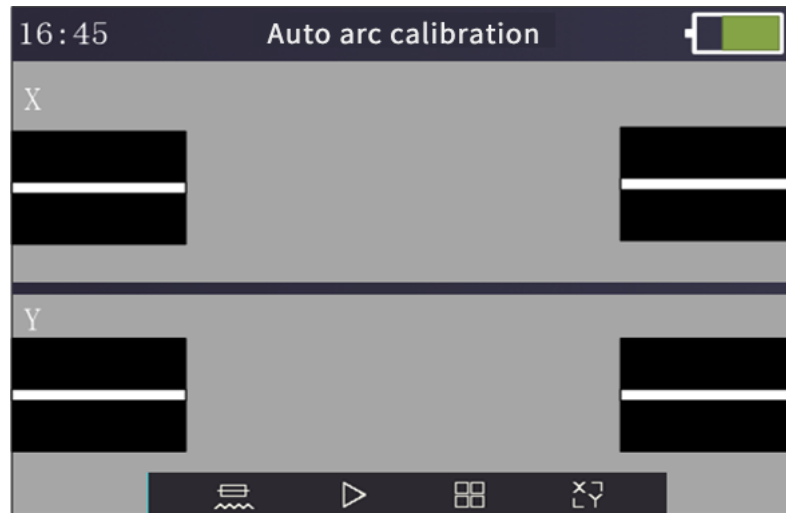


Figure 5.5 Auto arc calibration

5.5 Replacing Electrodes

When the arc produces high temperature to melt the optical fiber, silicon oxide vapor will be generated, which will partially deposit on the electrode, increasing the surface potential energy of the electrode, which will cause the electrode to discharge poorly and the arc to be unstable. Therefore, the electrode should be replaced after the number of discharges exceeds 3000 times.

Please replace the electrodes according to the following steps:

- (1) Enter the “maintain” menu, select the “ARC”, then select “replace electrode”, and the fusion splicer will shut down.
- (2) Loosen setscrews of electrodes cover and remove the electrodes cover, as shown in Figure 5.6.
- (3) Take out the old electrode from the electrode holder.
- (4) Install the new electrodes into the original electrodes seat position. Close the electrodes cover and tighten the screws.
- (5) Power on the machine. Take an electrode aging. The electrode aging operation detailed in 5.6.
- (6) After replacing the electrode, please use automatic arc calibration for one arc calibration.

Note: Be gentle when changing electrodes to avoid damaging the splicer or stabbing yourself. When replacing the electrode needle, be sure to hold it down with tweezers or hands to prevent it from falling into the machine. When removing the motor cover, pay attention to the construction lighting wire and do not pull it off.

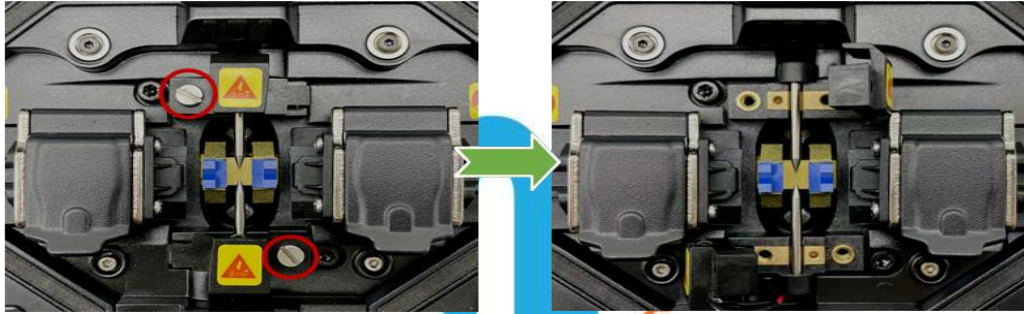


Figure 5.6 Remove the electrodes cover

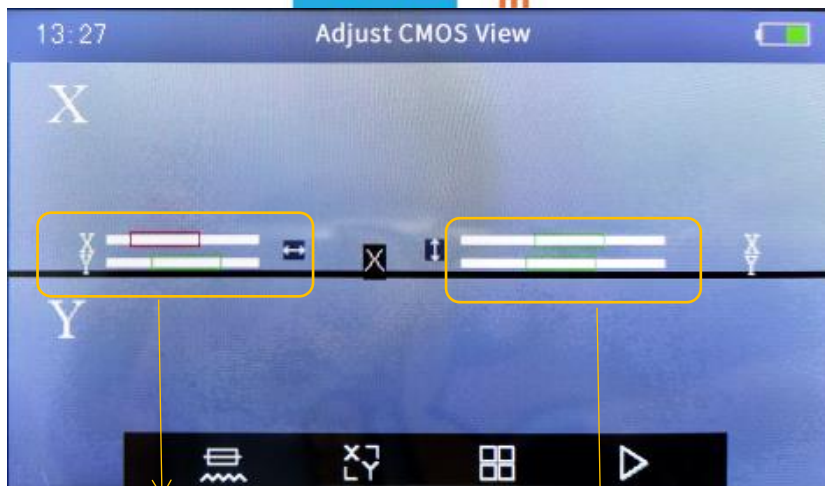
5.6 Electrode stabilization

The electrodes arc begins unstably when the external environment such as the temperature and pressure changed greatly especially moving the machine from low altitude to high altitude. When such happened, users should take certain numbers of discharge to stabilize the circuit operating parameters. Select "electrode stabilization "in the electrode menu, and the fusion splicer will perform 5 arc discharges.

Note: Please operate according to tips, do not open the windproof cover during operation.

5.7 Adjust CMOS View

The position of the optical fiber can be adjusted in the screen. Press the direction keys to adjust the position of the optical fiber displayed on the screen, press the enter key or press the physical keys X/Y to select the X or Y field of view. As shown in Figure 5.7.



Indicates the current position of the optical fiber relative to the entire CMOS.

Green: The current position is suitable

Red: The current position is not suitable

The up or down keys on the left keyboard control the vertical position of the optical fiber in the display.

X: X screen relative position/Y: Y screen relative position

Figure 5.7 Adjust CMOS view

The left area controls the horizontal position of the optical fiber in the video area, and pressing the left and right keys on the keyboard controls its movement. The right area controls the vertical position of the optical fiber in the video area, and pressing the up and down keys on the keyboard controls its movement.

The middle area is the area for switching the current screen operation.

Problems	Reason	Solution
"Please check fiber!"	The optical fiber clamp is too backward, when the motor runs beyond the stroke, the optical fiber still does not appear on the display, the software believes that there is no optical fiber or optical fiber is too backward.	Place the optical fiber forward to ensure that the end face of the fiber can be observed on the screen, or that the distance between the fiber and the electrode does not exceed 2mm.
"Please reload fiber"	The optical fiber clamp is too far forward, exceeding the center line of the display, and the software cannot effectively adjust the position of the optical fiber.	Place the optical fiber backwards to ensure that the end face of the fiber can be observed on the screen.
"Fusion failed"	According to the image, the fusion point of the optical fiber is abnormal, such as disconnection, black spot, optical fiber sag, etc., and the software judges the fusion failure.	There are many reasons that lead to the fusion failure, such as different types of fiber, fiber clamping failure, and abnormal fusion parameters.

"Please close cover"	The windproof cover is not closed, or the Hall sensor on the windproof cover is faulty.	Close the windproof cover.
"Bad L(R) end face"	The fiber end face angle exceeds the limit.	Recut the fibers , or increase the end face angle in the fusion parameter.
"X(Y) Image Light Error"	The microscope has condensation of water vapor, or the imaging lamp is malfunctioning.	Clean the microscope or check the imaging light.

6 Common fault and solution

Appendix A

Warranty Terms and Conditions

If the fusion splicer fails within two years from the date of shipment because of manufacturing faults, it will be repaired free of charge. However, if the following situations occur, it is not covered by the free warranty:

- Failure or damage caused by natural disasters.
- Failure or damage caused by abnormal voltage supply.
- Malfunction or damage caused by wrong operation.
- Failure or damage caused by not following the operation steps in the manual.
- Consumable parts (such as electrodes, etc.).

Information required for repairs (please include the following information in the machine)

- <1> your full name, company, address, phone number, fax number and e-mail.
- <2> model and serial number of the fusion splicer.
- <3> the problems encountered.

Under what circumstances, and when the problem occurs?

What is the current situation?

Information of screen display and the error tips etc.

Notice: Before return the fusion splicer, please contact iFiber via e-mail or Phone.





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