Optical Fiber Fusion Splicer

RT-81

Instruction Manual

Contents

Warnings and Safety Precautions

This product is designed for splicing glass optical fibers used for communication and it is strictly forbidden to splice other substances. Miss-operation can cause electric shock, fire or personal injury. Please carefully read and observe the following rules for your own safety.

Warnings:

(1) Use the power supply unit provided by this product mix . Do not use other power adapter, battery or power line .Do not use this product under other voltages so as not to cause fire or electric shock.

(2) Don't let liquid such as water or metal material drop into the equipment, otherwise it may cause fire, electric shock or equipment breakdown. Stop using the equipment, unplug the battery socket and contact our maintenance staff once any of the above situation happens.

(3) Must not use the fusion splicer under combustible or explosive environment , otherwise it may cause fire or explosion.

(4) Do not touch the electrodes when the fusion splicer is operating which may cause injury by high voltage generated by arc of electrodes. Ensure that the power is off and the power line has been pulled out when replacing the electrodes.

(5) Once smoking, bad smell or abnormal noise occurs, stop using the fusion splicer immediately, unplug the power plug and contact our maintenance staff. Continue using may cause fire, electric shock or equipment breakdown.

(6) Disassembling or reassembling the fusion splicer, reassembling the battery or power adapter is prohibited to avoid over-heating, burst or fire.

(7) Please strictly follow the operation manual on how to use the battery. Wrong operations can cause battery over-heating, burst or explosion leading to fire or personal injury.

*Please don’t use other methods beyond this manual to charge the battery;

*Please don’t throw the battery into fire;

*Please don’t connect positive and negative electrodes with reverse interfaces;

*Please don’t charge or discharge under high temperature ,fire or directly sunlight;

*Please don’t throw or strike battery;

*If the battery electrolyte leaks out, handle it carefully. If the spill contacts skin or eyes inadvertently, you must thoroughly clean and immediately take medical treatment, at the same time inform repair department to

process the battery.

(8) Optical fiber fusion splicer must be repaired and debugged by professional. Incorrect repair may cause fire or electrical shock. If a failure occurs, please contact our repair department.

Attention:

(1) Don’t use or store Optical fiber fusion splicer in high temperature and under highly humid environment otherwise it may cause damage to the equipment.

(2) Don’t touch the heat shrinkable sleeve in the process of heating or just after heating, for the high temperature may cause burns.

(3) Don’t touch the equipment with wet hand, AC power line or AC plug, otherwise it may cause electric shock.

(4) Don’t use any other chemical except alcohol to clean the microscope lens, V-groove or monitor, it may lead to blurred images or stains, even cause corrosion and damage of equipment.

(5) Please take appropriate dust proof measures when the equipment is operated under dusty environment so as to avoid dust from entering the interior of the equipment and cause breakdown.

(6) Avoid the equipment from strong vibration and impact, it may cause equipment damage. Please transport or store the equipment in specified carrying case.

Chapter1 Brief Introduction of the Product

This chapter introduces the performance of the equipment in details. Reading through this section can help you understand this product and familiarize the product features, technical parameters and the operating environment.

1.1 Product Introduction

0ptical fiber fusion splicer is a mini fiber splicing equipment which is compactly designed, easy to carry and operation. It has vivid and exquisite image-forming system and high precision image processing technology on fiber alignment which leads to its high proficiency in splicing and low loss. Its beautiful operation interface and body design which conforms to operation principle of ergonomics greatly improve user experience. It is equipped with large capacity lithium battery which provides reliable guarantee for a long time field work. In summary, Removable plug large lithium battery capacity, providing a credible guarantee for field work for a long time.it is a totally automatic small, light and beautiful Optical fiber fusion splicer with high performance, high safety, low power consumption and can be easily operated.

1.2 Product Features and Technical Index

1.2.1 Features

(1) Based on the principle of PAS (Lateral Projection System), adopt advanced image detection algorithm;

(2) Double core align structure, higher success rate of fusion and lower loss;

(3) Reliability design to enhance the ability of shockproof and dustproof;

(4) Low-power design, many functions can be used at the same time, and can still work for a long time;

(5) Small size and light weight can greatly improve work efficiency;

(6) Adaptive environmental information such as air pressure, temperature and humidity, and automatic discharge compensation;1.2.2 Technology Indexes

Table 1-1 Main Technical Indexes

Applicable Optical Fiber Types	SM (G.652/G.657), MM (G.651), DS (G.653), NZDS (G.655), EDF,BIF/UBIF
Applicable Optical Fiber Core Number	Single core
Applicable Optical Fiber Diameter	Cladding Diameter: 80-150μm,Coating diameter:125～1000μm
Fusion splice Model	Prestore:8 groups, User define: 792 groups
Average Fusion Splice Loss	0.02dB(SM), 0.01dB(MM), 0.04dB(DS), 0.04dB(NZDS)
Return Loss	Better than 60dB
Fusion splice Duration Time	9Sec(Typical Mode), 7Sec(Fast Mode)
Loss Estimation of Fusion Splice	Exist
Tension Test	≥2N(Optional)
Display	5 inches colorized LCD,Support for Chinese, English, Spanish, Russian, French, Portuguese, etc.
Optical Fiber Magnification Times	X/Y:180 times, X or Y:360 times
Power Supply	11.1V Lithium battery, 13.5V/5A power adapter
Battery	Typically work 200/300 cycles (Splicing / Heating), Full charge 3Hours, Recharge Cycle: 500 times, 5200/6800mA plug-in Li-battery
Storage	10,000 Records
Image storage	10 pieces image
Data Interface	USB2.0
Operating Environment	Elevation:0~5000m, Relative humidity:0~95%,Temperature:-20°C~55°C，Maximum wind speed:15m/s
Storage Environment	Relative humidity:0~95%, Temperature:-40°C~80°C (Except Battery), Temperature:-10°C~40°C (Battery)
Weight	1.51kg(without battery), 1.91kg(with battery)
Corrosion Resistance	Equipment components, Parts and materials meet composite anti-corrosion requirements, Anti-fluid pollution
Size	166D×144W×158H(mm)
Working aloft	Optional side hook strap, you can hang the machine directly on the operator’s neck by the strap
Alignment	Core alignment, Cladding alignment, Fine Alignment
Applicable Optical Fiber Cable Diameter	2mm, 3mm, 4mm, 6mm

Applicable Sleeve Length	60mm, 45mm, 40mm(FP-03)
Heating time	17s/22s V Groove Fast heating (customizable)
Heating temperature	Below 260°C (customizable)
Automatic Heating	Automatic fiber identification & Heating when close cover

1.3 Standard Assembly of Fusion Splicer

Table 1-2 Standard Package

Serial number	Name	Configuration
1	Optical Fiber Fusion Splicer	●
2	High Precision Fiber Cleaver	●
3	Power Adapter	●
4	AC Power Cord	●
5	High Precision Electrode	●
6	Cooling Tray	●
7	Three-hole Miller Stripper	●
8	Multifunctional Fixture	●
9	Carrying Case	●
10	Dust-blowing Ball	●
11	Instruction Manual	●
12	Alcohol bottle	●
13	Rubber-insulated Fiber Stripper(Optional)	○
14	FC, LC, SC(Optional)	○
15	Car Charger(Optional)	○
16	Aerial Working Platform(Optional)	○

1.4 Introduce of Fusion Splicer

1.4.1 Host of Fusion Splicer

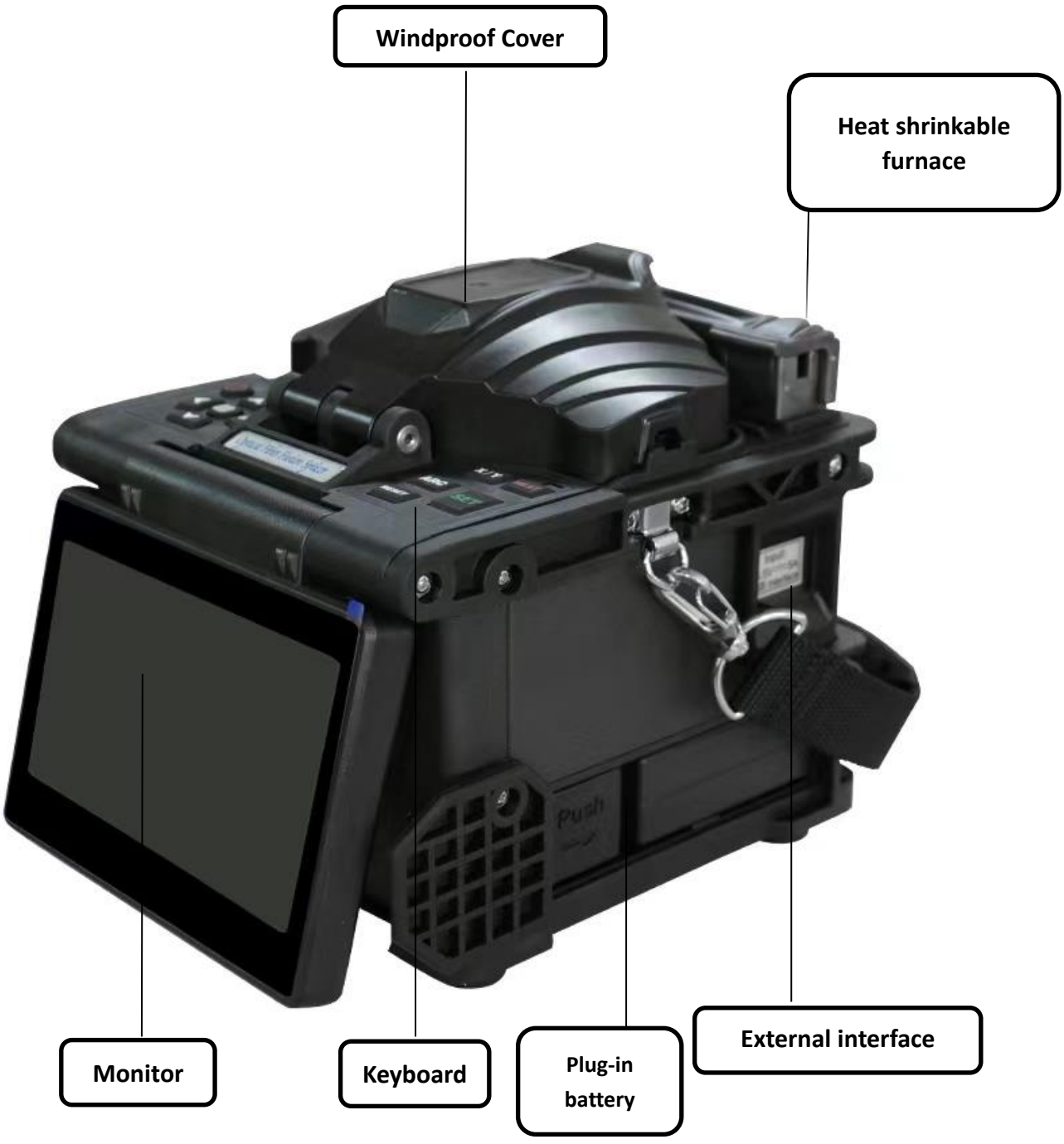
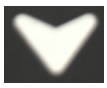


Figure 1-1Host Machine View

1.4.2 Keyboard

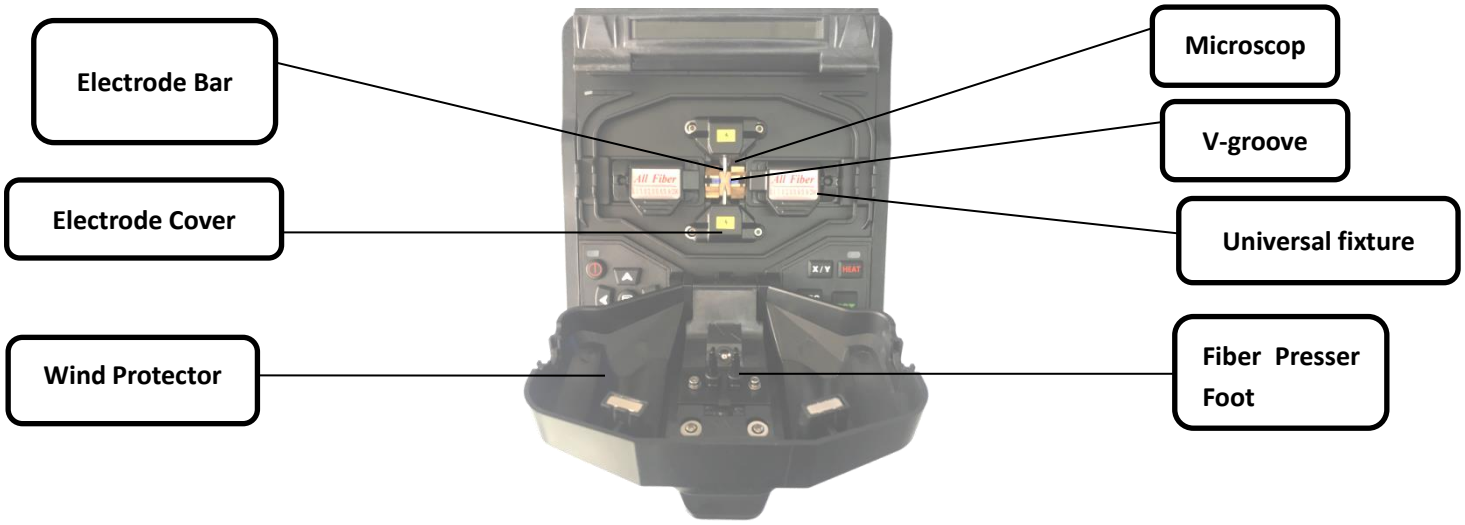
Figure 1-2 Keyboard View

Table 1-3Keyboard Function Descriptions

Keyboard Icon	Name	Function
	Power key	Power on / off
	Menu/Confirm	Enter menu, Press an enter key on the menu
	Up key	Menu cursor moves upward
	Down key	Menu cursor moves downward
	Left key	Menu cursor moves to the left, reset the current option
	Right key	Menu cursor moves to the right, reset the current option
	Exit Key /switch key of XY field of view	Return to previous menu, field X, Y switch in Optical fiber mode
	Sleeve heating Key	Start sleeve heating
	ARC correction	Fast ARC correction
	Reset key	Equipment reset

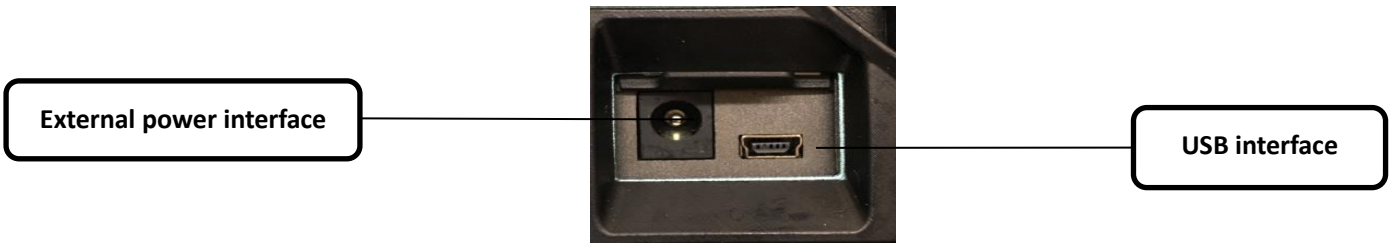
SET	Start Key	Start alignment, Start fusion splicing

1.4.3 Optical Fiber Fusion Splicer Device



1.4.4 Tube Heater

1.4.5 External Interface



Part 2 Operations

In this part we will introduce the fundamental operation methods of the splicer. Please carefully read this part so to use the device properly and get expected splicing effectiveness ,in case any damages caused.

2.1Power Supply

The product support 2 types of power supply: Internal Lithium battery power supply(No outer adapter connected); Outer power adapter power supply (With power adapter). Plug the output cord of the adapter into the outer interface of the splicer, the internal battery will be charged.

The battery charging condition shows on the upper right corner of the screen 

When the battery power is low there will be warning notice on the screen, the user should get the battery charged or the adapter connected.

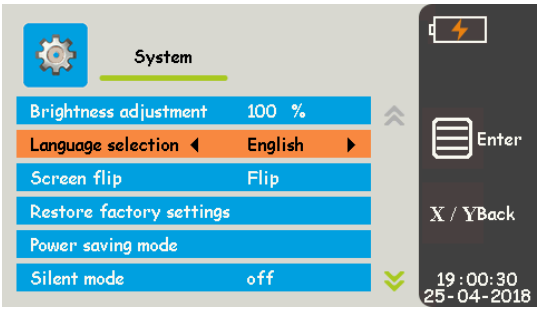
The power is too low 

2.2Power On/Off

Shortly press the "  "to get the machine on. Power on, the indicator light will turn red, after the buzzer beeped for twice the fiber observation page will show itself. Press and hold the power button to turn off. The display screen will be off firstly and the indicator light will flash and turn off after you release your finger, indicating that the splicer has been turned off normally.

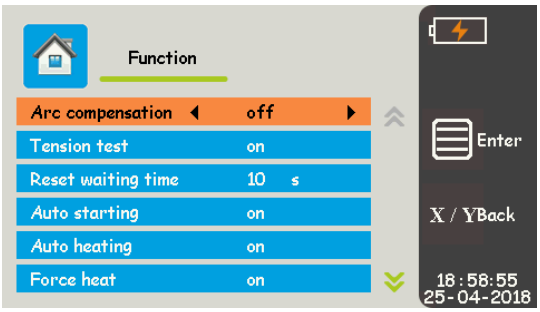
Optical Fiber Observation Page 

2.3System and Function Settings



System Settings

System	Explanation
Brightness	Adjust the brightness of the screen
Language selection	Default language is English, other languages optional
Screen flip	Rotate the display interface
Time setup	Set the system alarm
Restore factory setting	Reset the machine back to primary settings
Power saving mode	Auto sleep mode, auto shut-down mode available
Silent mode	Turn off/on the buzzer
Help	Provides operating instructions and information about the keyboard
Version Information	Current system version number



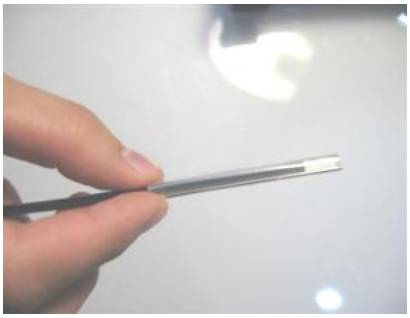
Function Setting Menu

Function	Explanation
Arc compensation	After the automatic discharge compensation function is turned on, the welding machine automatically adjusts the discharge current according to the real-time welding conditions. (It is recommended to set it to "ON")
Tension Test	If this is set "on", after splice is completed, the equipment will restore and tension test will perform itself
Reset Waiting Time	In the tension test is closed, the automatic reset wait time after flipping the lid (this setting is invalid when the tension test is on)
Auto Starting	If this is set “on”,it will perform alignment splice itself when the cover is lidded.
Auto heating	When this set is open, close the flip, automatic operation of heating.
Force heat	In the open condition, when an angle failure or an optical fiber mismatch is detected during the welding process, the user may press the start key to continue the fusion; in the closed state, when the angle failure or the optical fiber mismatch is detected during the fusion process, the system will automatically exit splicing.

2.4 Preparation before splicing

2.4.1Stripping and cleaning of fiber coating layer and other layers

Install the Sleeve



Install a sleeve on the fiber to protect the splice after splicing. Before installation, make sure that there is no dirt inside the sleeve, and keep the sleeve

Stripping other protective
Strip the coating layer 40mm
with a wire stripper

2.4.2 Stripping and cleaning of fiber coating layer

Clean Fiber After the optical fiber is stripped, use a dust-free paper dipped in high-purity alcohol to start from the interface between the coating and the bare optical fiber, and move in the direction of the bare optical fiber while rotating in a circular direction while cleaning the debris of the coating layer.

2.4.3 Fiber Cutting

(1)Open the cleaver cover and put the stripped fiber into the holder groove. Keep the fiber perpendicular to the blade.

(2)Close the fixture and the cleaver cover

(3)Push the slider and finish the cutting.

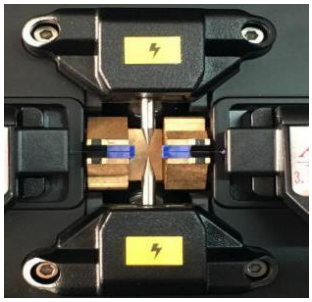
(4)Open the fixture and open up the pressure pad, take the fiber out.

(5)Take out the debris of fiber and put them into the collecting box.

Notice: When the cutting fails please adjust the blade of fiber cleaver. What's more, we'd like to suggest you to use specified fiber cleavers equipped with our machines.

2.4.4 Put Fibers

Put fibers →



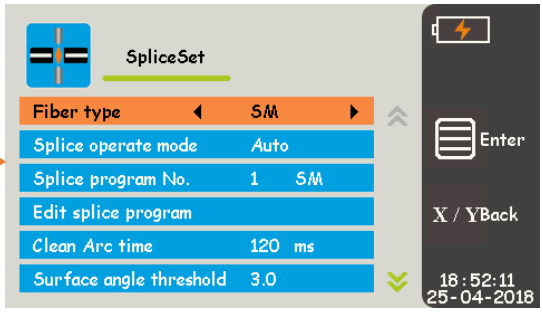
(1)Open the wind-proof cover and check if the V groove is clean, if it's not please clean the V groove as describe d in Part 3 item 3.5.

(2)Put the cut fiber on the holder and make sure the fiber is right in the V groove.

(3)Check if the end-faces of the fibers are in the position between the electrode tips and the V-grooves. And make sure they're close to the electrodes tips. Or the fibers shall be re-placed.

2.5 Splicing and Heating

Choose fiber type →



Choose different splicing program according to different fiber types

Splice Mode	Description
Fiber type	Set according to the type of fiber used such as SM(single mode),MM (Multimode),DS(Dispersion shifted),NZDS(Non-zero dispersion shifted). Each fiber preset 10 groups of splice program. User scan choose corresponding one based on fiber type
Splice operate mode	Automatic or Manual
Splice Program No.	8groups preset splice program, 792groups of users-set splice program
Edit splice program	Edit splice parameters under the current number of program
Clean Arc time	Cleaning discharge refers to the cleaning of fine dust attached to the surface of an optical fiber by a short-term discharge. Clean discharge time range is 0-0.2 seconds
Surface angle	Set the limiting value of the end face angle. When the angle of the end face of the

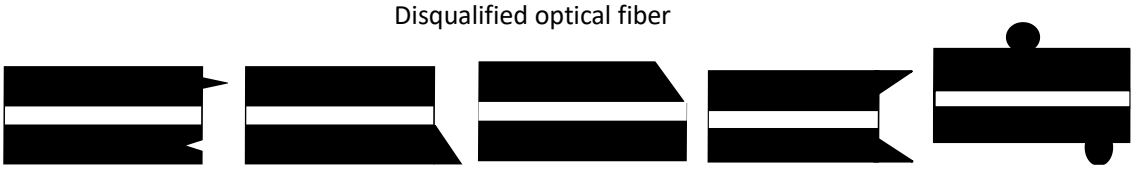
threshold	left and right optical fibers exceeds the limit value, the screen displays an error message. The setting range is 0-8°
Fiber angle threshold	Left and right optical fiber alignment after the angle limit, beyond the screen display error message, the range is 0-4 °
Align offset threshold	An error message is displayed if the misalignment of the two fibers spliced exceeds the misalignment limit. The setting range is 0.0-1.5μm
Loss threshold	An error message is displayed if the estimated splice loss exceeds the loss limit. The setting range is 0-0.2db
Compensation arc time	In some cases, the compensation arc can improve the splice loss
Fiber alignment mode	Cladding align or core align can be set
Fast splice mode	It can be set "Open" or "Close" which can accelerate alignment

Cover the wind-proof cover and start splicing

Close the wind-proof cover the fibers will be automatically aligned and the system will check the end-face of the fiber.There will be notice one the screen if the end-face quality is too low. The fiber need to be recut. If the “Forced splice mode” is on the user can press “Start” button to continue slicing.

If the splicing mode is set as semiautomatic mode, after fiber alignment there will be “Splice”on the screen,the user can press start button to splice or press reset button to recover the motors. If it’s set as automatic mode the system will splice directly without pressing any button.

Disqualified optical fiber

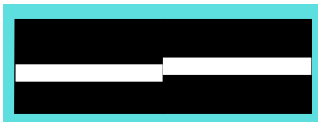


Spikes Glitches Bevels Notches Dust on surface

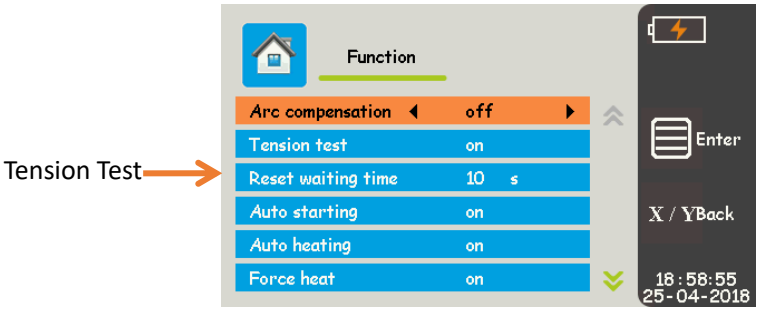
2.5.1 Splicing loss and quality estimation

When the splicing process is done there will be estimated splicing loss value on the right of the screen .The limitation of the splicing loss value can be set in “Splice operate mode”. Please be noted that sometimes the spliced point may be a little thick than other part, it’s normal in splicing and will not affect splicing loss.

Analysis of Splicing Malfunctions

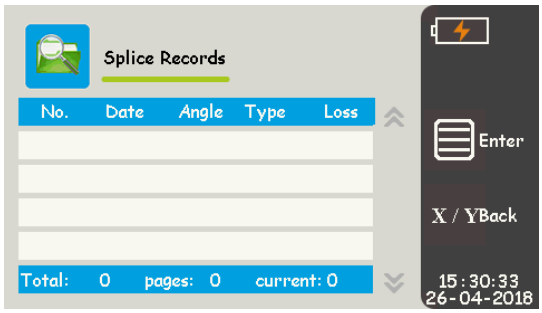
Images	Reasons	Solutions
 Fiber core axis dislocation	Dust on V-groove or fiber pressers Image examination malfunction	Clean the V-groove/fiber pressers If the situation appears for many times please “Self-Test Mode”
 Fiber angle problem	Dust on V-groove or fiber pressers Disqualified cutting angle of fiber Fibers are placed improperly	Clean the V-groove/fiber pressers Recut the fiber Replace the fiber
 Bubbles	Disqualified cutting angle of fiber Dust on fiber Low pre-splicing current or short pre-splicing duration Low splicing current or short discharging time	Recut or clean the fiber Increase the【Pre-Arc current】or extend【Pre-Splice time】 Increase【Arc current】or extend【Splice time】
 Separated fibers	Propulsion distance is too short Propulsion speed is too low Splicing current is too strong or discharging time too long	Please “Self-Test Mode” Decrease【Pre-Arc current】or shorten【Pre-Splice time】
 Thick connecting point	Over-propulsion	Shorten【Overlap length】, please do【Arc correction】
 Thin connecting point	Propulsion distance is too short Splicing current is too strong	Increase【Overlap length】,please do “arc Correction” Decrease【Arc current】
 Line between fibers	Splicing current is too weak	Increase the【Arc current】

2.5.2 Tension Test



If the “Tension Test”is on, the tension test will be running automatically after splicing.

2.5.3 Storage and searching of splicing result



History	Explanation
Total Arc number	The number of discharging activities counted since latest clear operation.
Clear Arc count	Clear Discharging Record
Total records	The number of splicing records saved by system.
View records	Splicing date, Loss estimation checkable.
Delete records	Delete all splicing records.
Query fault records	Record of warnings, malfunctions etc.
Delete fault records	Delete malfunction records

2.5.4 Heating operation

Choose heating mode and fiber type

Choose【SleeveSet】in menu, choose relative heating mode according to the diameter and length of the shrinkable tube.Please enable the default settings.The heating temperature and time are changeable.

Heating →

1.Open the cover

2.Take out the spliced fiber and move the shrinkable tube to make it right around the spliced point.

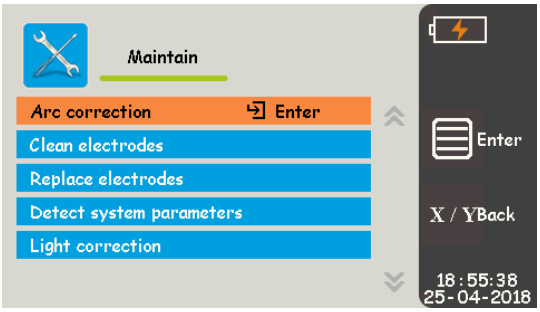
3.Put the shrinkable tube into the heater and keep it in the middle of the groove.Straighten the fiber then close the cover, the heating indicator light will be on.

4.When the indicator light is off it means the heating is finished.Please open the cover and take out the fiber immediately.(Please do not touch the heated shrinkable tube in case of burns.)

5.Check the heating result, put it in the cooling tray for cooling if it's qualified. If it's not qualified, for example there is dust or bubble inside, please operate again.

Part 3 Maintenance

3.1 Maintenance Menu



Maintain	Description
Arc correction	Automatically correct the discharge current.
Clean electrodes	Clean the electrodes by a couple of times of high current discharge .
Replace electrodes	Automatically detect discharge position and stabilize new electrodes by discharges after electrodes changing.
Detect system parameters	Automatically check the position of electrodes, test the motors etc.
Light correction	Automatically correct the light source of the red light.

3.2 Arc correction

We insist to suggest users to do Arc correction under below situations：

- **Temperature, humidity or air pressure changes**
- **Aging or pollution of electrodes**
- **Continuous splice fails or high splicing loss**
- **Machine is idle for a long time**
- **Electrodes over used**
- **Electrodes are newly cleaned or replaced**

The process of “Arc Correction”：

(1)Choose “Arc Correction” under “Maintain”

(2)Put cut fibers on fiber holders and close the wind-proof cover.

(3)Press “SET” to start。

(4)If there is “Arc current too powerful” or “Arc current too weak” please repeat the operation of （2）（3） until it shows the correction is successful.

(5)If it notice “Arc calibration failed”,please restart from step（1）.

3.3 Electrodes maintenance

Clean electrodes →

(1)Choose “Clean electrodes”under “maintain”.

(2)Press “SET”, the splicer will clean the electrodes automatically

Notice: Do not touch the tips of the electrodes with any hard objects in case the electrodes might be damaged and the splicing effect might be affected.

Replace electrodes →

The electrodes will be attrited due to long time use. Please replace the electrodes timely or the splicing quality will be affected.

(1)Users shall cut the power and turn off the machine before replacing electrodes.

(2)Unscrew the screws on electrode cover, take off the electrodes.

(3)Put new electrodes into the electrode groove then put the cover back and tight the screws gently.

(4)Check if the two electrodes are at the same horizontal line and the same vertical line. If not please re-put the electrodes.

(5)Turn on the machine and put well cut fiber into the machine, choose “Replace Electrodes” under “Maintenance”

(6)Please do “Self-Test Mode” and “Arc correction”

3.4 Detect system parameters

We insist to suggest users to do parameters detection：

- **After system updating**
- **After replacing/move electrodes**
- **After enduring long-distance transportation or strong shock**
- **After continuous splicing failures or splicing loss is abnormally high**
- **When there is continuous over-adjusting in alignment process in case splicing quality may be affected.**

The process of parameters detection：

(1)Clean V-groove and pressers as well as prepared fibers with cotton swab dipped with alcohol.

(2)Choose “Self-Test Mode”under “Maintain”, press menu for twice to enter parameters detection page.

(3)Put fibers and close the cover the self-test will be on.

(4)Normally the test will continue for 2 minutes. Please observe the notice on screen, if the test fails please operate according to instructions on screen and retry it(Step 2).

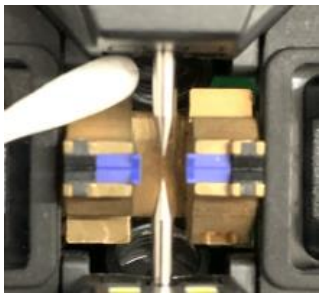
3.5 Splicer Cleaning

V-groove Cleaning →

(1)Open the wind-proof cover of the splicer.
(2)Clean the contaminant on V-groove with equipped dust-blow ball.
(3)Clean the bottom of the V-groove with cotton swab dipped with alcohol.Notice: Do not touch the tips of electrodes. Clean the V-groove gently and do not use any hard stuff (Blade etc.) to clean the groove in case any damages affecting normal functions caused.

(1)Turn off the machine and open the wind-proof cover.

Microscope lens Cleaning →



(2)Clean the lens gently with cotton swab dipped with alcohol.
Notice: Do not touch the electrodes. Do not touch the lens with hard stuff.
(3) Clean the residual alcohol with dry cotton swab and make sure there is no contaminant left.
(4)Turn on the machine, observe the image on screen and check if there is dust or other contaminant, if so, please clean the lens again.

Fiber Pressers Cleaning →

Open the wind-proof cover.
Clean the pressers with cotton swab dipped with alcohol and clean the residual alcohol with dry swab after cleaning.

Heater Cleaning →

Dust is easy to accumulate on the heater, please clean the heating board regularly.

3.6 System Upgrading

（1） Press “  ” under “Version Information” to enter the info page. Here the software version code of the splicer is visible. (For example V0.01 V0.01 ROM:0.01). The user can get newest upgrading files from the manufacturer. If the software is already the newest version there is no need to upgrade again.

（2） Open the splicer and connect the splicer to a computer with USB data cord. There will be USB operation notice on the computer.Copy the upgrading file and put it directly to the root directory of the USB stick, then restart the machine while the copy finished.（Notice: Please do not turn off the machine before the copy is finished or malfunctions may appear.）

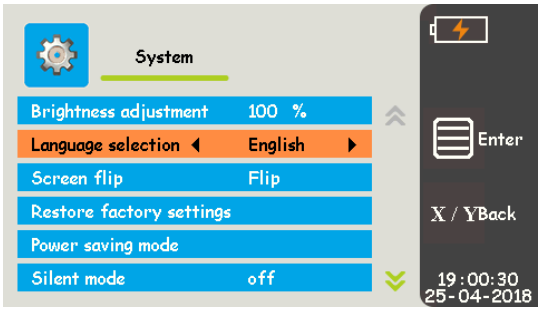
（3） Please operate according to the instruction after the splicer restarted. There will be a while for the upgrade to be finished from 0% to 100%. If the process abnormally stopped or interrupted please repeat step (2) (3)

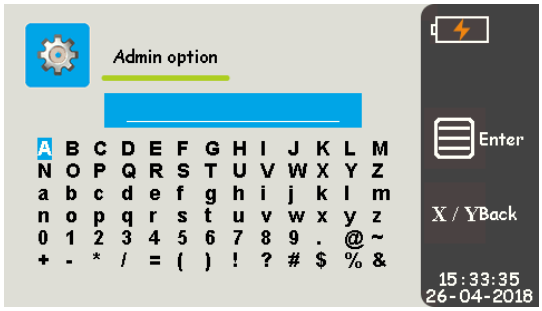
（4） Any problem can’t be solved by yourself please contact our after-sales department.

Chapter4 Password Control Function (Optional)

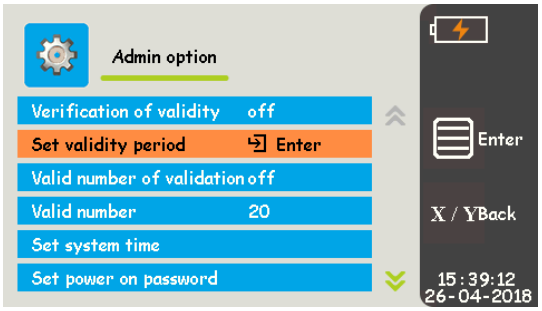
4.1 Management Options Interface

Go to the management interface through the “Management Options” under the “System Settings” interface. The management options can be used to control the life of the fusion splicer, the number of effective uses, and the power-on password.



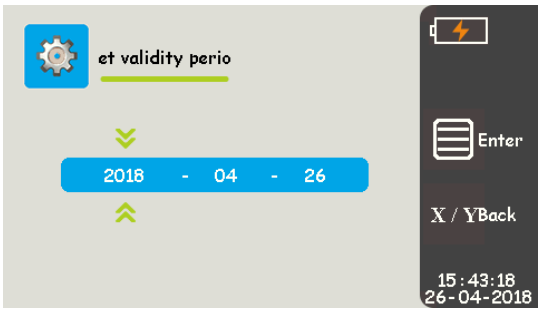


The management password supports 1~16 digits, and the management password defaults to 8888. Adjust the characters to be input by pressing the up, down, left and right buttons; press the menu button to select the selected character as the current input. Press the reset button to cancel the current password; press the start button to confirm the password input. If the input is correct, enter the management interface directly, otherwise the input error will be prompted. Press and hold the button continuously for quick adjustment.



(1) "Valid validity verification": When the validity period verification function is enabled, regardless of whether the power-on forced verification password function is enabled, if the system detects that the setting validity period is exceeded, the system will pop up the password login interface, and a password consisting of red numbers will appear on the password login interface. The key, the user needs to inform the fusion splicer manager of the key to obtain the temporary power-on password. After the input is correct, the system automatically activates the previous password. When the validity period verification function is turned off, the system will not detect the validity period of the fusion splicer. The fusion splicer is considered to be permanently effective.

(2) "Set Validity Period": This option allows you to set the expiration date of the fusion splicer. Use the left and right buttons to adjust the field of validity; use the up and down buttons to adjust the validity period, and press and hold the up and down buttons to achieve quick adjustment. Press the Menu button to save the expiration date.

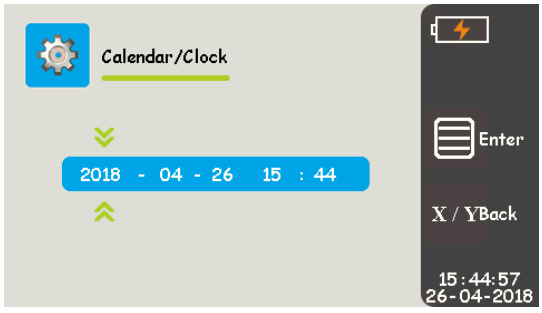


(3) "valid number verification": When the effective number verification function is enabled, regardless of whether the power-on forced verification password function is enabled, if the system detects that the setting is valid, the system will pop up the password login interface, and a red number will appear on the password login interface. The key is composed, and the user needs to inform the fusion splicer manager of the key to obtain the temporary power-on password. After the input is correct, the system automatically activates the previous password. When the effective number verification feature is turned off, the system no longer limits the number of uses.

(4) "Effective number of times": The number of welds that the machine can use.

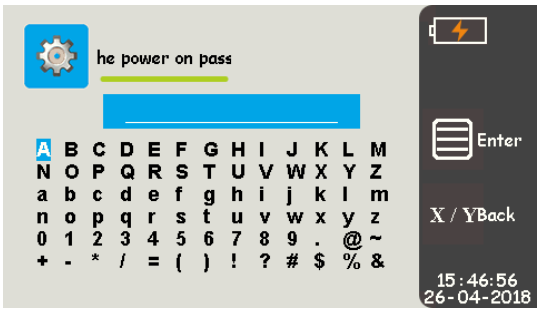
(5) When "valid validity verification" and "effective number verification" are simultaneously turned on, "valid period verification" is used as the default verification method. When "Valid Validation" and "Effective Verification" are closed at the same time, the machine's usage rights are no longer restricted.

(6) "Set system time": This option can be used to set the fusion splicer system time. Use the left and right buttons to adjust the time field; use the up and down buttons to adjust the time, and press and hold the up and down buttons to achieve quick adjustment. Press the Menu button to save the time.



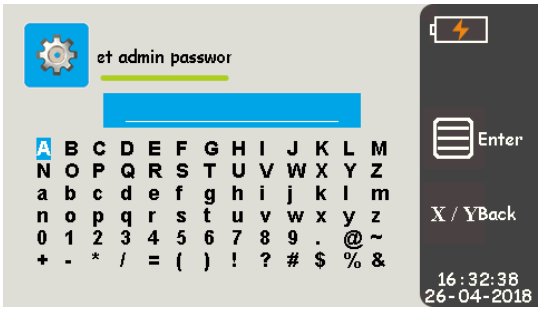
(7) "Set power-on password": This option can be used to set the fusion machine power-on login password.

Adjust the characters to be input by pressing the up, down, left and right buttons; press the menu button to select the selected character as the current input. Press the reset button to cancel the current password; press the start button to save the current password and prompt the setting. Press and hold the button continuously for quick adjustment.



(8) "Power On Forced Authentication Password": When this function is enabled, the user will be required to enter a password each time the phone is turned on. If the boot does not require password verification, you can turn it off.

(9) "Set Management Password": This option allows you to set the management password. Adjust the characters to be input by pressing the up, down, left and right buttons; press the menu button to select the selected character as the current input. Press the reset button to cancel the current password; press the start button to save the current password and prompt the setting. Press and hold the button continuously for quick adjustment.



4.2 Power-on password login interface introduction

(1) The power-on password supports 1~16 digits. The factory default value is 111111111111. After the user logs in successfully, you can change the power-on password through the “Set Power-on Password” under the “Management Options” interface.

(2) In the power-on password login interface, adjust the characters to be input by pressing the up, down, left and right buttons; press the menu button to select the selected character as the current input. Press the reset button to cancel the current input password; press the start button to confirm the password input. If the input is

correct, enter the fusion interface directly, otherwise the input error will be prompted. Press and hold the button continuously for quick adjustment.

(3) When the valid period verification method is adopted, the number below the password input box is the validity period of the machine; when the effective number verification method is adopted, the number below the password input box is the number of remaining uses of the machine. If the fusion splicer exceeds the expiration date or exceeds the effective usage count, a red key will appear on the interface. The user needs to inform the administrator of the key to obtain the temporary power-on password. After the input is correct, the system automatically Activate the previous password. The key does not appear on this interface if the validity period is not exceeded or the number of valid times is not exceeded.

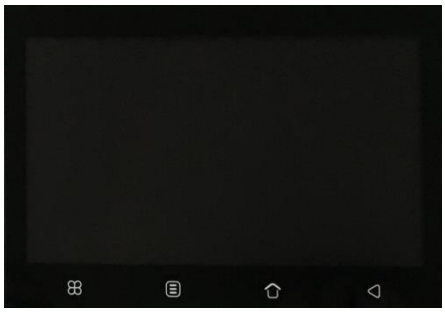
(4) If the validity period verification function is turned on, the expiration date of the fusion splicer will be displayed on this interface. If the validity period verification function is turned off, the expiration date of the fusion splicer will not be displayed on this interface.

If the Validity Verification feature is turned on, the number of remaining uses is displayed on this screen. If the effective number verification feature is turned off, the number of remaining uses will not be displayed on this screen.

Chapter 5 Introduction to Capacitive Screen (Optional)

5.1 capacitive screen interface introduction

There are four touch buttons below the touch panel, the first is the return button, the second is the menu button, the third is the start button, and the fourth is the reset button.



5.2 Introduction to the fusion interface

(1) Touch the "SET" area to start the fusion.

(2) Touch the "RESET" area to reset.

(3) Touch the display fiber image area in the middle to switch the field of view.

5.3 Introduction to the main menu interface

(1) Double-click the icons corresponding to “Splicing Settings”, “Heat Shrink Settings”, “Device Maintenance”, “History”, “Function Settings” and “System Settings” to perform the corresponding interface.

(2) Touch the confirmation icon to perform the confirmation operation.

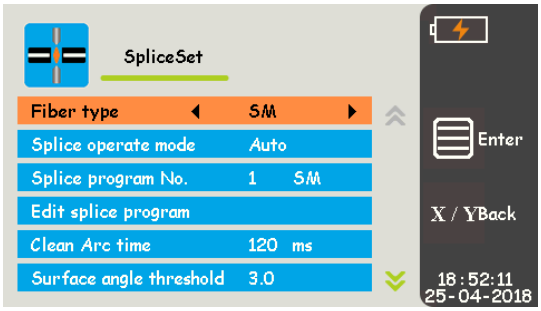
(3) Touch the X/Y icon to perform the return operation.

5.4 fusion setting interface introduction

(1) Touch the corresponding menu item and the background changes color. If the left and right arrow icons appear, the representative can modify the parameters. Touch the left arrow area to perform the decrease operation, and touch the right arrow area to perform the increase operation. If the Enter icon appears, touch again to go to the next screen.

(2) Touch the confirmation icon to perform the confirmation operation.

(3) Touch the X/Y icon to perform the return operation.



5.5 heat shrink interface introduction

(1) Touch the corresponding menu item and the background changes color. If the left and right arrow icons appear, the representative can modify the parameters.

Touch the left arrow area to perform the decrease operation, and touch the right arrow area to perform the increase operation.

(2) Touch the confirmation icon to perform the confirmation operation.

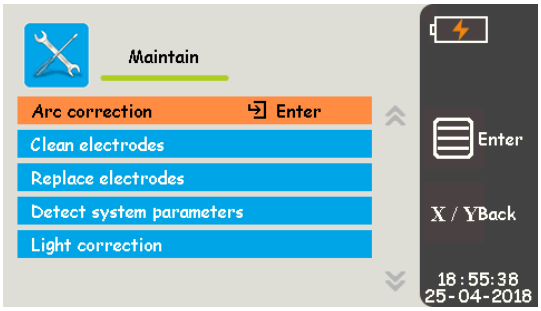
(3) Touch the X/Y icon to perform the return operation.

5.6 Introduction to Device Maintenance Interface

(1) Touch the corresponding menu item and the background changes color. Touch again to enter the appropriate device maintenance options.

(2) Touch the confirmation icon to perform the confirmation operation.

(3) Touch the X/Y icon to perform the return operation.



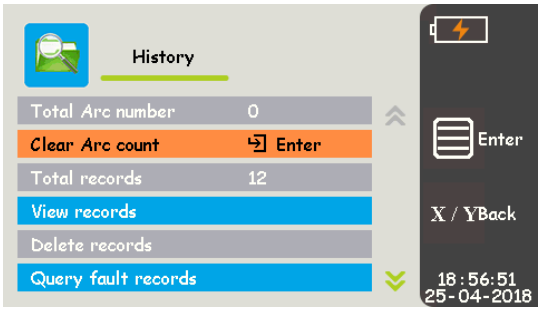
5.7 History Interface Introduction

(1) Clear the number of discharges, you need to touch the confirmation icon on the right to clear the operation.

(2) Touch the corresponding menu item and the background changes color. After the Enter icon appears, touch again to go to the next screen.

(3) Touch the confirmation icon to perform the confirmation operation.

(4) Touch the X/Y icon to perform the return operation.



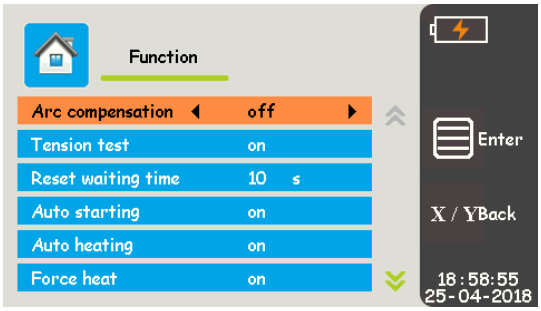
5.8 Function Setting Interface Introduction

(1) Touch the corresponding menu item and the background changes color. If the left and right arrow icons appear, the representative can modify the parameters.

Touch the left arrow area to perform the decrease operation, and touch the right arrow area to perform the increase operation.

(2) Touch the confirmation icon to perform the confirmation operation.

(3) Touch the X/Y icon to perform the return operation.



5.9 system setting interface introduction

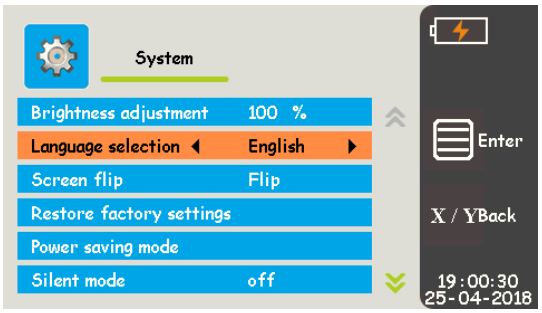
(1) Touch the corresponding menu item and the background changes color. If the left and right arrow icons appear, the representative can modify the parameters.

Touch the left arrow area to perform the decrease operation, and touch the right arrow area to perform the increase operation. If the Enter image appears

Mark, touch again to enter the next interface.

(2) Touch the confirmation icon to perform the confirmation operation.

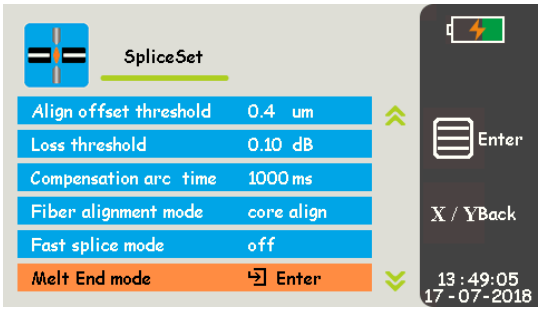
(3) Touch the X/Y icon to perform the return operation.



Chapter 6 Melting Machine Mode (Optional)

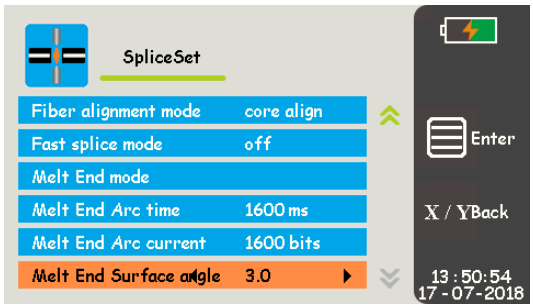
6.1 enter the fuse machine mode

Enter the main interface, find the "splicing settings", press the menu button to enter the fusion settings, find the "melting machine mode", press the menu button, the fusion machine enters the melt mode. Before entering the fuse mode for the first time, you need to place the fiber before entering the fuse mode.



6.2 fuse machine mode related menu

Enter the main interface, find the "splicing settings", press the menu button to enter the welding settings, "melting machine discharge time", "melting machine discharge current", "melting machine end face angle limit". When the end face fails, press the start button to force the discharge.



6.3 Exiting the fuser mode

When the fuse mode is in the reset completion state, press the reset button to exit the fuse mode and enter the fusion mode.

Appendix 1 Warning Information

Warning information(English information is contained within the brackets)	Reason	Countermeasures
Incorrect placement of left fiber(LFPC)	(1) Left fiber is cleaved too short; (2) The part of left fiber put into V-groove is broken; (3) Left fiber is not put into the center of V-groove; (4) Left propulsion equipment is incorrectly connected	● In the case of 1 or 2,re-cleave left fiber and make sure the cleaved length is appropriate ● In the case of 3, replace left fiber ● If the breakdown do not match 1、2、3,do【Calibrate System】, If the problem remains, please contact the after sales service department
Right fiber placement is incorrect(RFPC)	(1) Right fiber is cleaved too short; (2) The part of Right fiber put into V-groove is broken; (3) Right fiber is not put into the center of V-groove; (4) Right propulsion equipment is incorrectly connected	Solutions refer to the above
Left and Right fiber placement are incorrect(LRFPC)	The same as above	Solution refer to the above
Left fiber is unqualified(LFNQ)	(1) Left fiber surface is dusty; (2) Left fiber is cleaved poorly, such as core defect, cladding defect or fiber incompleteness	● In the case of 1,use alcohol to clean the left fiber ● In the case of 2,remake fiber
Right fiber is unqualified (RFNQ)	(1) Right fiber surface is dusty; (2) Right fiber is cleaved poorly, such as core defect, cladding, defect, fiber incompleteness	Solution refer to the above
Right fiber is unqualified(LRFNQ)	The same as above	Solution refer to the above
Left fiber head face is unqualified(LFEANQ)	Left fiber head face angle exceeds limit	Re-cleave left fiber. If cutting quality is still poor after multiple trial , replace the blade (attention: in【Menu】->【Splicing Mode】->【Surface Angle Threshold】, head face angle limit can be set)
Right fiber head face is unqualified(LRFEANQ)	Right fiber head face angle exceeds limit	Solution refer to the above
Left and Right fiber head face are unqualified(FANQ)	Left and Right fiber head face angle exceeds limit	Solution refer to the above
Estimated loss amount is too much	(1) splice loss exceeds limit; (2) The selected program do not match the fiber type	Clean v-groove, reoperate【Arc calibration】then splice again
Power is too insufficient	Current remaining battery less than 2%	Use power adapter to charge
Replace electrodes	Electrodes arc records exceed the limit	Replace electrodes(operate【Replace Electrodes】,【Calibrate system】)
Records exceed limit	Splice records exceed the limit	Use USB data cable to transmit the original splice records, then operate【Delete Arc Records】

Appendix 2 Problems and Troubleshooting

Abnormal phenomena	Reason	Countermeasures
arc sounds abnormally	Electrodes are incorrectly placed	Re-install electrode strictly
arc delay or system could not arc	(1)Electrodes are incorrectly placed; (2)The electrode tip is wrapped by monox	(1)Re-install electrode strictly; (2)Clean electrode tip or replace electrode
system crashes when arc	Electrodes are incorrectly placed	Re-install electrodes strictly
Arc calibration failure	Environment Affects arc greatly	If the system warns that arc current is too big, decrease splice current, then do【Arc calibration】and vice versa. If the problem remains, contact the after sales service department
Optical fiber alignment error	(1) Microscope lens, LED lamp or V–groove is dusty; (2) Equipment power system is faulty	Clean the microscope lens, LED lamp and V –groove, if the problem remains, contact the after sales service department
Fiber spliced joint's quality is poor	(1)Fiber is dusty; (2)The fiber type or fusion splice program selected is wrong; (3)Fusion splice environment changes greatly; (4)Control equipment is broken	(1)Re-make optical fiber, splice again; (2)Choose the right type of fiber and fusion splice program; (3)Operate【Arc calibration】to obtain the appropriate intensity of arc; (4)Operate【Calibrate System】
The keyboard has no response	System crashes	Turn off the power and restart
The screen has no light or blurry colors	(1)System crashes; (2)Wire of LCD monitor looses or is broken	Turn off the power and restart. If the problem remains, contact the after sales service department
On both sides of weld after discharge, fiber has not succeeded	Abnormal discharge intensity or system error	Please do continue to weld again after discharge correction, if still cannot solve the problem, the shutdown restart
Optical fiber in the process of alignment is beyond the view outside	1.Optical fiber placed outside the V groove; 2.System is running abnormal	1.Please re-position the optical fiber and guarantee in the center of the V groove 2.The selected welding mode - > 】【 welding operation mode 】 menu, enter the "manual" mode, select operation about optical fiber, the operator can be through four direction key move the corresponding side of the optical fiber, motor back to the center of the field, and then do self-checking system parameters.