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OPTICAL FIBER FUSION SPLICER USR MANUAL

Model: ALK-T1

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OPTICAL FIBER FUSION SPLICER

Model: **ALK-T1**

NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us: **CustomerService@vevor.com**

This is the original instruction, please read all manual instructions carefully before operating. VEVOR reserves clear interpretation of our user manual. The appearance of the product shall be subject to the product you received. Please forgive us that we won't inform you again if there are any technology or software updates on our product.

Catalog

Warnings and safety precautions

This product is designed for fusing glass optical fibers for communication purposes and should not be used for fusing other substances. Incorrect handling may result in electric shock, fire and personal injury. For the safety of the user, please read and observe the following carefully.

Warning

♦ Do not use power adapters, batteries, power cords, etc. other than those specified for this product. Do not use voltages other than those specified for this product as this may cause a fire or electric shock.
♦ Do not allow liquids such as water or metallic substances to enter the interior of the machine, as this may cause fire, electric shock or machine failure. In the event of water or metallic substances entering the machine, stop using it, unplug it from the mains and contact our maintenance department.
♦ Do not use the fusion splicer in a flammable or explosive environment, as this may lead to fire or explosion.
♦ Do not touch the electrodes when the fusion splicer is in operation to avoid being injured by the high voltage generated by the electrode discharge. Also when replacing the electrodes the power must be switched off and the power cord unplugged.
♦ If you find that the machine is smoking, smells or makes unusual noises, please stop using it immediately and unplug it from the power supply and contact our maintenance service. If you continue to use the machine, it may cause fire, electric shock, machine failure and other accidents.
♦ It is forbidden to dismantle or modify the fusing machine, battery or power adapter to avoid heat, rupture or fire.
♦ Please use the battery in strict accordance with the

operating instructions, as incorrect use of the battery may result in heat, rupture, explosion, fire or personal injury

Caution

♦ Do not use and store the fusion splicer in an environment with high temperatures and humidity as this may cause damage to the equipment.
♦ Do not touch the heat shrink tube during or just after heating, as the heat shrink tube is very hot and may cause burns.
♦ Do not touch the fusion splicer, AC power cord and AC plug when your hands are wet as this may cause electric shock.
♦ Do not use any chemicals other than alcohol to clean microscope lenses, V-grooves, displays etc. as this may result in blurred images, smudges etc. and may even cause corrosion and damage to the equipment.
♦ When used in dusty environments, appropriate dust control measures must be taken to avoid large amounts of dust entering the inside of the machine and causing it to malfunction.
♦ Do not subject the fusion splicer to strong vibrations and shocks, as this may cause damage to the machine. Use a special carrying case for transporting or storing the fusion splicer.
♦ Use the power adapter supplied as standard, if you use your own adapter, the fusion splicer may not work properly.
♦ Please check the battery level before using the fusion splicer. If the battery level is low or there is an under voltage alarm, please recharge the battery pack in time. (When the battery is fully charged but still has a very short operating time, please replace the battery with the specified type in time).

Chapter 1 Product Description

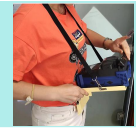
1.1 Basic Parameters

Parameters	
Applicable Optical Fiber Types	SM, MM, DS, NZDS, UI, BUI, EDF
Applicable fiber core number	Single core
Number of motors	4
Alignment method	Core alignment, cladding alignment, fine alignment
Applicable fiber diameter	Cladding Diameter:125-150μm，Coating diameter:250～1000μm
Splicing mode	Pre-stored: 8 groups, user define: 792 groups
Splicing method	Electric arc fusion welding
Splicing function	Step-by-step splicing (semi-automatic and manual), automatic splicing
Boot time	3s
Average splicing loss	0.02dB(SM)，0.01dB(MM)，0.04dB(DS)，0.04dB(NZDS)
Return loss	Better than 60dB
Splicing time	10sec(typical mode)/8sec(fast mode)
Splicing loss evaluation	Exists
Tension test	Min. 2N
Display	3.5-inch TFT true color LCD display
User-device interaction mode	Buttons
Fiber Magnification	X and Y:115 times，X or Y:230 times

Power supply	11.1V Lithium battery，13.5V/5A power adapter
Battery	Typically170 times(splicing/heating)，full charge: 2.5H，recharge cycle: 500 times, 3500mAh
Power-saving function	Support setting power saving mode to achieve power saving function
Storage	10000 records
Image Storage	20 images
Electrode lifetime	5000
Data Interface	USB2.0
Operating Environment	Elevation: 0～5000m, Relative humidity 0～95% (no condensation), working temperature -20℃～55℃, maximum wind speed 15m/s
Storage Environment	Relative humidity 0～95% (no condensation), temperature -40℃ 80℃, temperature -10℃～40℃ (battery)
Weight	1.28KG
Size	210D×133W×105H(mm)
Authority management function	Optional
Applicable sleeve diameter	2mm,3mm,4mm,6mm
Applicable sleeve length	60mm，50mm，45mm，40mm，25mm(FP-03)
Heating time	2mm sleeve(10-15sec)，4mm

	sleeve(15-20sec)，6mm sleeve(15-20sec)
Heating temperature	10-260℃(user editable)
Automatic heating	Automatic recognition when cover closed
Night work light	LED
Aerial work	Optional aerial work platform
Removable battery	Pluggable replacement
Battery safety protection	overcharge and over discharge protection
Reverse power supply	Output DC5V/2A. Providing power for mobile, external LED lighting and other 5V devices
Working status indicator	Easy to know the current status of the device at a glance when working in complex conditions
Button backlight	Convenient for better operation of equipment at night
OPM（optional）	
Measuring range	-70~+26dBm
Plug Type	InGaAs
Bias	±5%
Standard wavelength	1310/1490/1550
Display Resolution	0.05dB
VFL（optional）	
Power	15mW
Wavelength	650nm±20nm

1.2 Configuration

Item	Product Name	Picture	Marks
1	Fusion Splicer		●
2	Fiber Cleaver		●
3	Power Adapter		●
4	3-hole stripper		●
5	Cooling Tray		●
6	blowing ball		●
7	Carrying bag		●
8	plastic tweezer		●
9	Alcohol Dispenser		●
10	Car charger		optional
11	Aerial working platform		optional

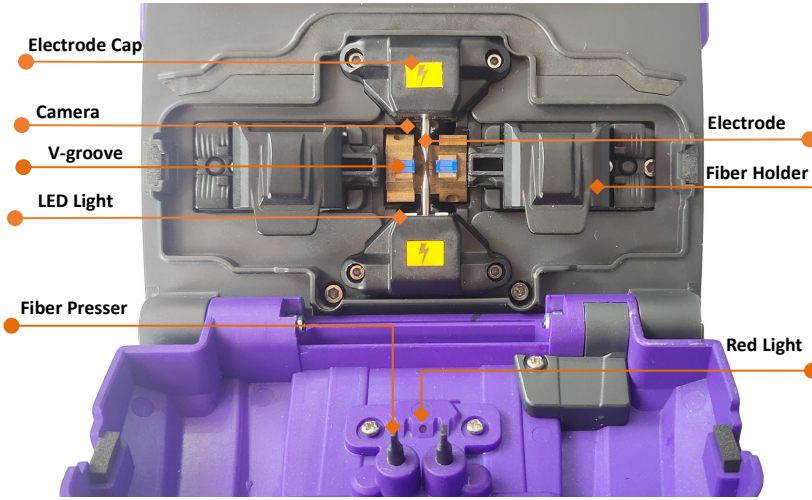
1.3 Introduction of Fusion Splicer Components

NOTE: VFL and optical power meter are optional functions.

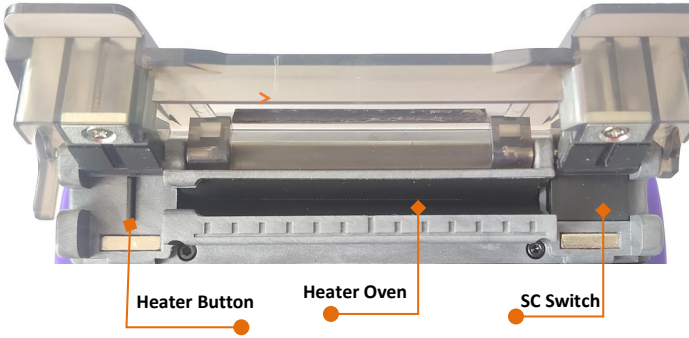
1.4 Operation buttons

Picture	Name	Button function details
	Power	Device on or off
	Menu	Access to the menu, confirmation key under the menu
	Start	Start of alignment, start of discharge fusion, etc.
	Up	Menu cursor up, work screen shortcuts
	Down	Menu cursor down, work screen shortcuts
	Left	Menu cursor left, work screen shortcuts
	Right	Menu cursor right, work screen shortcuts
	Reset	Fusing interface motor reset
	Heat	Start heating
	X/Y switch/exit	Switching between X and Y fields of view in fiber optic alignment mode, long press for 2 seconds to quickly switch between left and right fiber optics in manual mode, menu screen to return to previous screen

1.4.1 Splicing



1.4.2 Heater



Chapter 2 Basic operation

This chapter describes the basic operation of the fusion splicer. Read this chapter in detail to use the equipment correctly and to avoid problems such as damage to the equipment and no normal results.

2.1 Power supply connection

The product supports the following two types of power supply: internal lithium battery pack (no external power adapter plugged in); external power adapter (external power adapter plugged in). Plugging the DC output cable of the adaptor into the external power connector of the fusion splicer will charge the battery pack.

When the battery is too low, the fusion splicer will display an alarm message on the display and the user should promptly charge the battery pack or power it with the power adapter.

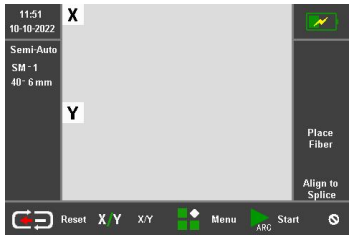
Battery indicator and charging logo in the top right corner of the display

When the battery is too low, the fusion splicer will show an alarm message on the display and the user should recharge the battery pack or use the power adapter to supply power in time.

Low battery sign

2.2 Power on and off

Short press the power button "  " to turn on the machine, the power button indicator turns red, the buzzer emits "beep, beep" two sounds, after which the display shows the working screen. Long press the power button to switch off the machine, you can observe that the display first turns off, the power indicator flashes, and the indicator goes out after releasing the hand, indicating that the fusion splicer has been closed normally.

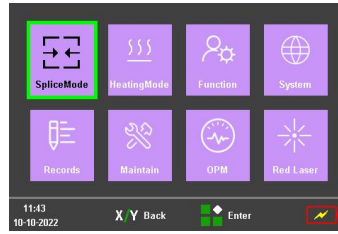


Working screen

2.3 Introduction to the main menu and shortcut key operations

2.3.1 Introduction to the main menu screen

（1） Press the menu key "  " to enter the main menu screen



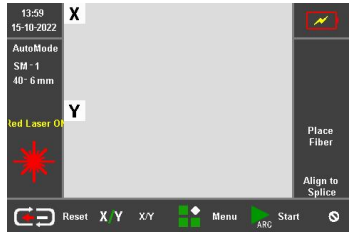
Menu

Menu	Description
Splice Mode	Set parameters in splice mode
Heat Mode	Set parameters in heat mode
Function settings	Setting parameters for discharge compensation, tension test, automatic heating of closed lids, etc.
System settings	Set display parameters, menu language, time, restore factory settings, power saving, etc.
History	Record discharge times, fusion results, stored images, error, etc.
Maintenance	ARC and LED calibration, electrode maintenance, self-test
Power meter settings	Select wavelength and compensation, etc.
VFL settings	VFL switch

2.3.2 Introduction to shortcut keys

Four shortcut keys have been added to the workbench interface to operate the operation as follows.

1) Press and hold the "▲" up key for 2s, the red light on logo will appear on the right side of the workbench, at this time, it means the red light is on. Press and hold the "▲" up key again for 2s, then the red light will turn off.

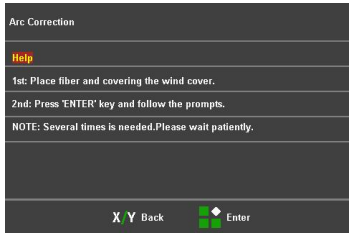


Shortcut to open the VFL function

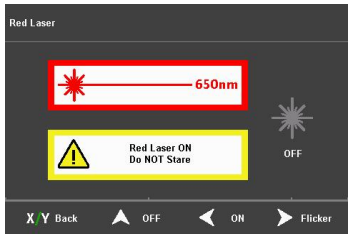
2）Press and hold the "◀ "left button for 2s, the workbench will jump to the power meter setting screen.

3）Press and hold the "▼ " down key for 2s and the

table will jump to the ARC calibration screen.



4）Press and hold the "➤" right button for 2s and the workbench will jump to the red light setting screen.



2.4 Preparation before splicing

2.4.1 Stripping of protective layers other than the fiber coating

Strip drop cable

Strip pigtail and patch cord

Peel off the outer plastic layer with the large jaw of the

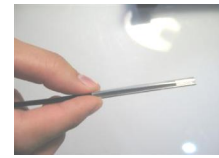
Cut away the Kevlar with scissors

Peel off the inner plastic layer with small jaws using 3-hole stripper.

Strip 0.9 bare

2.4.2 Install heat shrink tubing

Install heat shrink tubing



2.4.3 Removal and cleaning of fiber optic coatings

Stripping of fiber coating

Clean fiber

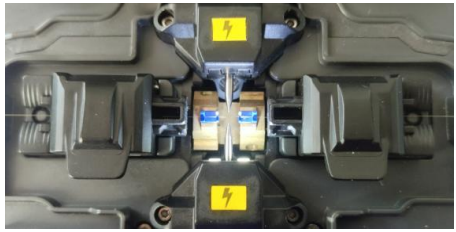
After stripping the fiber, a dust-free paper moistened with high purity alcohol is used to remove debris from the coating layer, starting at the interface between the coating and the bare fibre and rotating in a circular direction towards the bare fibre.

2.4.4 Cleave the fiber

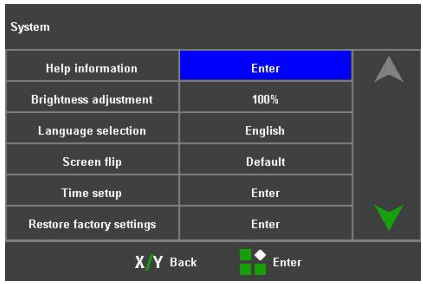
(1) Open the cleaver flap and place the stripped fiber into the cleaver fiber holder slot, keeping the fiber perpendicular to the cleaver surface.
(2) Slowly press down on the cleaver fiber holder flap and the cleaver flap.
(3) Gently push the slider forward to cut the fiber.
(4) Open the cleaver flap and fiber holder flap and remove the cut fiber.
(5) Remove the fibre scrap and place in the fibre scrap box.
Note: When the cutting end is not good or the fiber cannot be cut, please adjust the cutter face; in addition, it is better to use the cleaver that comes with the fusion splicer.

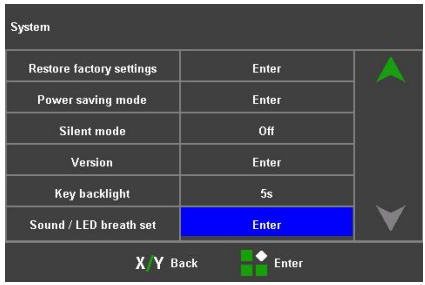
2.4.5 Put fiber

(1) Open the wind cover and observe if the V-slot is clean, if not, clean the V-slot as described in chapter 3, section 3.5.
(2) Place the cut optical fiber into the fiber holder.
(3) Observe that the end face of the fiber is positioned between the tip of the electrode and the placed in the V-slot.



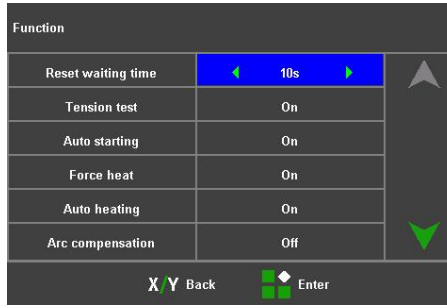
2.5 System and function settings

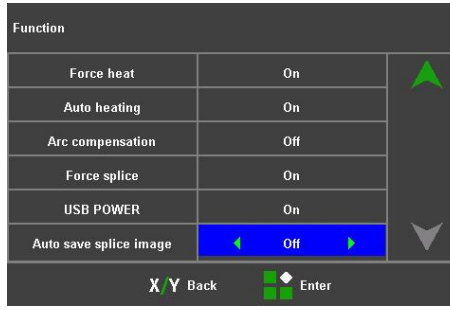




System Settings Interface

System	Description
Help Information	Provides instructions for operating the keyboard, information
Brightness adjustment	Adjusting the brightness of the display
Language selection	Default is the language selected at the time of order placement
Screen flip	Display rotated 180°
Time setup	Setting the system time clock
Restore factory settings	Restored to factory settings
Power saving mode	Auto-sleep and auto-off times can be set
Silent mode	Turning the buzzer sound on or off
Version	Current System Version No.
Key backlight	Set key backlight time or off
Sound/LED breath set	Set the work indicator breathing rate and the machine switch-on and fusion beeps





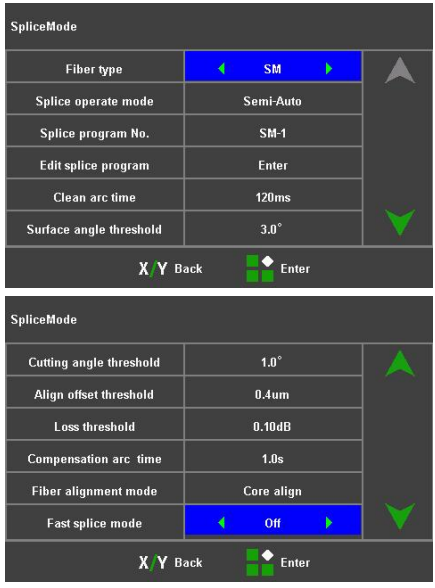
Function setting interface

Function	Description
Reset waiting time	When tension test on, waiting time for the motor to reset after opening the wind cover
Tension test	In the on condition, the tension test is performed automatically after the fusion is completed
Auto starting	When on, automatic fusion when the wind cover is closed
Force heat	When on, no fiber is detected and the heating button is pressed, it will also heat up
Auto heating	When on, automatic heating when the heater cover is closed
Arc compensation	When on, the fusion splicer automatically adjusts the current level according to the real time fusion situation
Force splice	When on, the user can press the start button to force the fusion to continue if the fusion process detects a failed angle or a mismatch of fibers
USB POWER	Turn on/off 5V/2A power supply
Auto save splice image	When on, the system automatically saves the fused image after the fusion is completed

2.6 Splicing operations

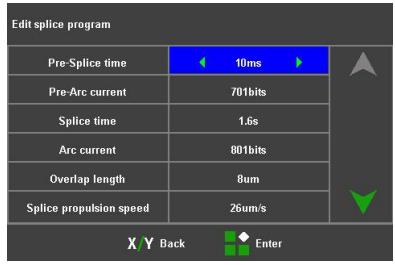
2.6.1 Select the splicing program and set the splicing parameters

（1）Splice mode description



Splice Mode	Description
Fiber type	SM, MM, DS, NZDS and other options allow the user to select the appropriate fiber type and fusion procedure depending on the type of fiber.
Splice operate mode	Automatic, semi-automatic and manual options available
Splice program No.	Different fusion parameter No. can be selected according to the current fiber type, which can be selected and modified by the user according to requirements
Edit splice program	Edit the current fiber type, fusion parameters under the current numbering program
Clean arc time	Clean arc means cleaning the smallest of dust from the fiber surface by discharging it prior to splicing
Surface angle threshold	Limit values for fiber end face angles
Cutting angle threshold	Limit value of the angle of the left and right fiber after alignment
Align offset threshold	Limit values for center deviation after alignment of left and right fiber
Loss threshold	The estimated splicing loss exceeds the limit and the screen displays an indication
Compensation arc time	After the fusion is completed, the fusion loss can be reduced by compensating the discharge under certain circumstances
Fiber alignment mode	Core alignment, cladding alignment, fine alignment can be set
Fast splice mode	Can be set on or off, fast mode reduces fusion time when on

（2）Under the [splice mode] menu select [Edit splice program].



Edit splice program	Description
Pre-Splice time	Set the pre-discharge time from the start of discharge to the propulsion of the fiber
Pre-Arc current	Set the pre-discharge intensity from the start of the discharge to the propulsion of the fiber
Arc time	Set the discharge time during splicing
Arc current	Setting the current strength for splicing
Overlap length	Set the amount of overlap for fiber propulsion during splicing
Splice propulsion speed	Setting the motor propulsion speed during splicing
Arc- 2	Set whether to enable additional discharge
Arc - 2-Time	Set the discharge time during splicing
Arc- 2-Current	Setting the current strength for splicing

2.6.2 Splicing loss estimation and quality evaluation

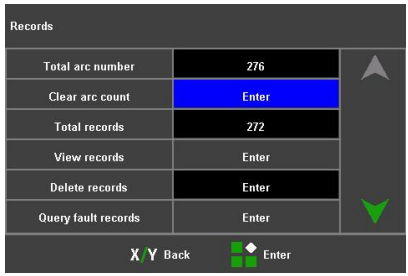
After the splicing of the fibers has been completed, the evaluation of the splicing loss is shown on the right side of the display. The limit value for the splicing loss is set in the menu [Fusion Splice Settings]. Note that the splice point sometimes looks slightly thicker than the rest of the splice, this is a normal splice and does not affect the splice loss.

Explanation of fusion splice exceptions

Phenomenon	Reason	Solution
 Axial misalignment of fiber cores	◆ Dust in V-groove or fiber presser foot ◆ Problems with image detection	◆ Clean the V-groove and fiber presser foot ◆ Repeated occurrences require a [detect system parameter]
 Wrong core angle	◆ Dust in the V-groove or fiber presser foot ◆ Bad end angle of the fiber ◆ Incorrect placement of the fiber	◆ Cleaning the V-groove and fiber presser foot ◆ Recutting fibers ◆ Repositioning the fibers
 Bubbles	◆ Bad angle on the end face of the fiber ◆ Dust on the end face of the fiber ◆ Low pre-melt current or short pre-melt time	◆ Cutting again or clean the fiber ◆ Up【Pre-Arc current】or Up 【Pre-Splice time】 ◆ Up【Arc current】or Up 【Splice

	◆ Low fusion current or short discharge time	time】
 Fiber separation	◆ Small splicing propulsion ◆ Small splicing advance ◆ High splicing current / Long discharge time	◆ Do【detect system parameter】 ◆ Down 【Pre-Arc current】Or down 【Pre-Splice time】
 Thick	◆ Big splicing propulsion	◆ Down 【Overlap length】, suggest to do【Arc correction】
 Thin	◆ Small splicing propulsion ◆ High splicing current	◆ Up 【Overlap length】, suggest to do【Arc correction】 ◆ Down【Arc current】
 Thin line	◆ Small splicing current	◆ Up 【Arc current】

2.7 Splice Result save and find

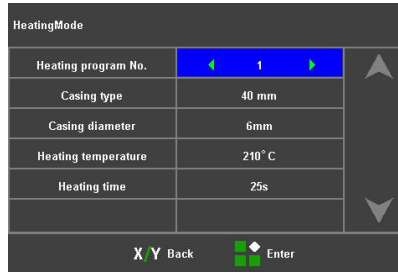


Records

2.8 Heating Operation

Records	Description
Total arc number	Number of electrode discharges since last zeroing
Clear arc count	Zero discharge count
Total records	Splicing records already stored in the system
View records	Check splicing time, loss estimation, etc.
Detect records	Delete all splicing records
Query fault records	Human error and all kinds of abnormal records

（1）Enter【Heating Mode】in the main menu.



Heating mode

Heating mode	Description
Heating program No.	The system has pre-stored heating programs for different heat shrink sleeves, plus a number of user-set programs
Casing type	10mm-60mm ordinary casing, FC/SC
Casing diameter	1-8mm
Heating temperature	Upper temperature limit for heating process
Heating time	Heat shrinkage heating time

Note: Select [Heating Mode] in the main menu and choose the appropriate heating program according to the diameter and length of the heat shrink tube, using the preset heating parameters as far as possible. The heating temperature and time are adjustable due to environmental differences.

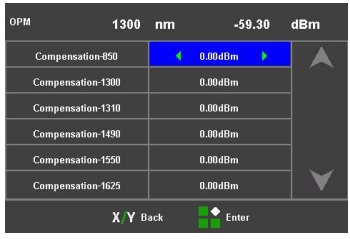
Heater heating

(1) Open the cover of the heater.
(2) Open the fusion splicer wind cover, remove the spliced fiber and move the heat shrink tubing to the center of the fusion splice point.
(3) Place the heat shrink protection sleeve into the heater, gently straighten the optical fiber and place the heat shrink protection sleeve into the center of the

heating bath, then cover the heater with the heating indicator light on.
(4) After the heating action is completed, the heating indicator light goes out; at this time, you need to open the heater cover immediately and remove the optical fiber. (Note: Do not touch the heated heat shrink protection sleeve with your hands to prevent burning)
(5) Check the heat shrinkage effect. If it is qualified, put it into the cooling tray for natural cooling. If it is not qualified, such as dust or air bubbles inside, it is recommended to carry out the heat shrinkage operation again.

2.9 OPM and VFL Operation

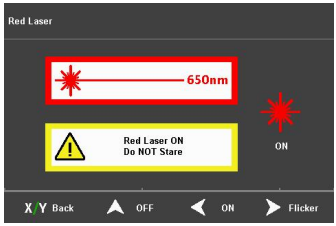
(1) Select [OPM] in the main menu to enter power meter setting menu



OPM compensation

OPM	Description
Wavelength	Set the current required measurement wavelength parameter
Compensation	Compensation of loss deviations

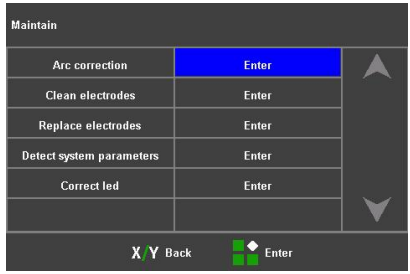
（2）Select 【VFL】in the main menu to enter VFL setting menu



Red light on operation: Press the“▲”key to turn on the red light and keep the constant light setting, press the“▲”key again and the red light changes to the flashing setting, press the“▲”key again to turn the red light off.

Chapter 3 Maintenance

3.0 Equipment maintenance menu



Maintain	Description
Arc correction	Performs discharge calibration operations and automatically corrects the discharge current
Clean electrodes	Multiple high current discharges to clean the electrodes
Replace electrodes	Automatic determination of the discharge position and multiple discharge stabilization of the electrode after replacement
Detect system parameters	Automatic self-test of electrode position, motor and other system parameters
Correct led	Automatic correction of red light sources

3.1 Arc Correction

It is strongly recommended that the fusion splicer should be calibrated after a change in the type of fiber, a system upgrade, a large change in the temperature, humidity and air pressure of the environment, continuous fusion failures or high losses, long periods of non-use of the fusion splicer or excessive use of the electrodes, cleaning or replacement of the electrodes. Otherwise the splicing effect will be affected.

The procedure for arc calibration is as follows.
(1) Select【Arc correction】in the【Maintain】menu.
(2) Place the cut fibers in the fusion splicer and close the wind cover.
(3) Press the start button to execute .
(4) If the display indicates "Discharge current too high" or "Discharge current too low", repeat (2) and (3) above until the arc correction is successful.
(5) If " arc correction failed" is indicated, start again with step (1).

3.2 Electrodes Maintenance

Clean → (1)Choose【Clean electrodes】in 【Maintain】menu.

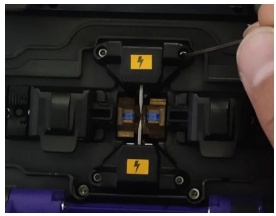
Replace → (2)Press the Start button and the fusion

Note: Do not touch the tip of the electrode with a hard object when replacing it to avoid damaging it and affecting the splicing effect.
The electrodes will be worn out by use, please replace them in time, otherwise the splicing effect of the fibers will be

affected. The number of discharges must be cleared after replacing the electrode. Do not touch the tip of the electrode rod when replacing.

(1) Before replacing the electrode, the user must switch off the power supply.

(2) Loosen the screws securing the electrode cover and remove the electrode.



(3) Install the new electrode into the electrode slot, fit the electrode cover and slowly tighten the screws.

(4) Observe that the two electrode connections are in the horizontal plane and also in the vertical plane; if not, reinstall the electrodes.

(5) Turn on the power, put the prepared optical fibers into the fusion splicer and select [Replace electrodes] in the [Maintain] menu.

(6) After the above operation is completed, please perform [Detect system parameters] and [Arc correction] again.

3.3 System parameter self-test

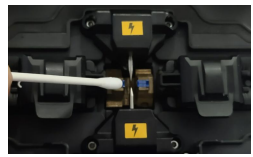
Strongly recommended that the fusion splicer perform system parameter self-test after system upgrade; replace electrode rods or move electrode rods; the fusion splicer has undergone long-distance transportation or severe vibration. Otherwise, will affect the splicing effect.

The steps of system parameter self-test are as follows:

(1) Clean the V-groove with a cotton swab dipped in alcohol, and clean the prepared optical fiber.
(2) Select [Detect system parameters] in the [Maintain] menu, and press the menu key twice continuously to enter the system parameter self-test interface.
(3) Put the cut optical fiber into the fusion splicer, close the windproof cover, and press the start button to start the system parameter self-test.
(4) Under normal circumstances, the parameter self-test will last for about 2 minutes, please observe the prompt information on the LCD screen, if the self-test fails, please correct the operation according to the prompt information, and restart the system parameter self-test (step2))

3.4 Cleaning and maintenance of Fusion Splicer

Clean the
V-groove

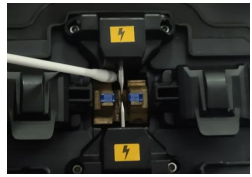


(1) Open the windproof cover of the fusion splicer.
(2) Use the delivered dust blower to clean the pollutants on the V-groove.
(3) Clean the bottom of the V-groove with a thin cotton swab dipped in alcohol.
Note: Do not touch the electrode tip. Do not use excessive force when cleaning,
so as not to damage the V-groove, resulting in abnormal use.

Cleaning the fiber optic presser foot

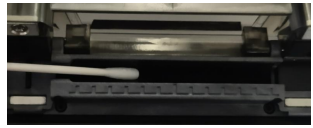
Open the windproof cover, wipe the surface of the presser foot with a fine cotton swab dipped in alcohol, make sure it is clean, and then dry the presser foot with a dry cotton swab.

Clean the lens



(1) Turn off the power of the fusion splicer and open the windproof cover.
(2) Gently and carefully wipe the lens with a fine cotton swab
(3) Turn on the power and do a light source calibration in the equipment
maintenance
Note: Do not touch the electrodes when cleaning, and do not touch the lens
with hard objects.

Clean the heater

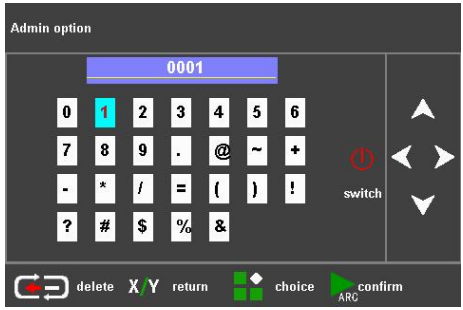


Dust and dirt are easy to deposit on the heater, please clean the heating plate regularly with a dry cotton swab.

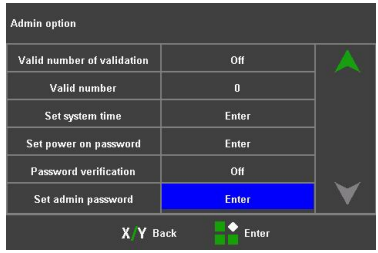
Chapter 4 Password Control Function (Optional)

4.1 Management options interface

Enter the management interface through "Management Options" under the "System Settings" interface. Functions such as the validity period of the fusion splicer, the number of valid times of use, and the power-on password can be controlled through the management options.



The management password supports 1~16 digits, and the factory default value of the management password is 8888. Press the up, down, left, and right keys to adjust the character to be input; press the menu key to use 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, it will directly enter the management interface, otherwise it will prompt an input error. Press and hold the key continuously for quick adjustments.



1. "Validity period verification": When the validity period verification function is enabled, no matter whether the power-on mandatory password verification function is enabled or not, if the system detects that the set validity period has expired, the system will pop up the password login interface, and the key composed of red numbers will appear on the password login interface. It is necessary to inform the manager of the fusion splicer of the key to obtain the temporary power-on password. After entering the correct password, the system will automatically activate the previous password. When the validity period verification function is turned off, the system will not detect the validity period of the fusion splicer, and consider the fusion splicer to be permanently valid.
2. "Set validity period": Through this option, you can set the validity period of the fusion splicer. Use the left and right buttons to adjust the field of validity period; press the up and down buttons to adjust the validity period, and press and hold the up and down buttons continuously to realize quick adjustment. Press the menu key to save the validity period.
3. "Valid times verification": When the valid times verification function is turned on, no matter whether the power-on forced verification password function is turned on or not, if the system detects that the number of valid times exceeds the set number, the system will pop up the password login interface, and a password composed of red numbers will appear on the password login interface. key, the user needs to inform the manager of the fusion splicer of the key to obtain the temporary power-on password for this time, and the system will automatically activate the previous

password after the input is correct. When the valid times verification function is turned off, the system no longer limits the number of uses.
4. "Valid times": the number of welding times the machine can use.
5. When "Validity Verification" and "Validity Times" are enabled at the same time, "Validity Verification" is used as the default verification method. When "Validity Verification" and "Validity Times" are turned off at the same time, the use rights of the machine are no longer restricted.
6. "Set system time": Through this option, you can set the system time of the fusion splicer. 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 continuously for quick adjustment. Press the menu key to save the time.
7. "Set power-on password": Through this option, you can set the login password for the fusion splicer. Press the up, down, left, and right keys to adjust the character to be input; press the menu key to use the selected character as the current input. Press the reset key to cancel the current input password; press the start key to save the current input password and prompt that the setting is successful. Press and hold the key continuously for quick adjustments.
8. "Power-on password verification": When this function is enabled, the user will be required to enter a password every time the device is turned on. If password authentication is not required for booting, this function can be turned off.
9. "Set Admin Password": Through this option, you can set the admin password. Press the up, down, left, and

right keys to adjust the character to be input; press the menu key to use the selected character as the current input. Press the reset key to cancel the current input password; press the start key to save the current input password and prompt that the setting is successful. Press and hold the key continuously for quick adjustments.

4.2 Power-on password login interface introduction

1. The power-on password supports 1~16 digits, and the factory default value is 111111111111. After the user logs in successfully, the power-on password can be changed through the "Set Power-On Password" under the "Management Options" interface.
2. On the power-on password login interface, press the up, down, left, and right keys to adjust the character to be input; press the menu key to use 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, it will directly enter the welding interface, otherwise it will prompt an input error. Press and hold the key continuously for quick adjustments.
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 valid times verification method is adopted, the number below the password input box is the remaining usage times of the machine. If the fusion splicer exceeds the valid period of use or the number of valid uses, a key composed of red numbers 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 will automatically Password before activation. The key will not appear on this interface if the validity period or the number of valid times has not been exceeded.
4. If the validity period verification function is turned on, the validity period of the fusion splicer will be displayed on this interface. If the validity period verification function is turned off, the validity period of the fusion splicer will not be displayed on this interface.If the valid times verification function is turned on, the remaining usage times will be displayed on this interface. If the valid times verification function is turned off, the remaining usage times will not be displayed on this interface.

Appendix 1 Warning Information

Warning information	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 motor is	1.In the case of 1 or 2,re-cleave left fiber and make sure the cleaved length is Appropriate 2.In the case of 3, replace left fiber 3.If the breakdown do not match 1、2、3,do【Calibrate System】, If the problem remains, please contact the

	incorrectly connected	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 motor is incorrectly connected	Solutions refer to the above
Left and Right fiber placement are incorrect(LRFPC)	The same as above	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	1. In the case of 1,use alcohol to clean the left fiber 2.In the case of 2,remake fiber
Right fiber is unqualified(LFNQ)	1. Right fiber surface is dusty; 2.Right fiber is	Solutions refer to the above

	cleaved poorly, such as core defect, cladding defect or fiber incompleteness	
Left and Right fiber head face are unqualified	The same as above	Solutions refer to the above
Left fiber head face is unqualified	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	Right fiber head face angle exceeds limit	Solution refer to the above
Left and Right fiber head face are unqualified	Left and Right fiber head face angle exceeds limit	Solution refer to the above
Fiber Angle is not qualified	The angle errors of the optical fibers on both	Replace both sides fiber

	sides in the horizontal and vertical directions are greater than the set threshold.	
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 insufficient	Use power adapter to charge
Replace electrodes	Electrodes arc records exceed the limit	Replace electrodes(operate 【Replace Electrodes】, 【Calibrate system】)

Appendix 2 Problems and Troubleshooting

Abnormal phenomena	Reason	Countermeasures
arc sounds abnormally	Electrodes are incorrectly placed	Reinstall electrode strictly
arc delay or system could not arc	1.Electrodes are incorrectly placed 2.The electrode tip is wrapped by monox	1、 Reinstall electrode strictly 2、 Clean electrode tip or replace electrode
system crashes when arc	Electrodes are incorrectly placed	Reinstall 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 splicing point'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
After splice discharge, the fibers on both sides are not fused together	Abnormal discharge intensity or system error	Please do continue to splice 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	1、Please reposition the optical fiber and guarantee in the center of the V groove

	running abnormal	2、The selected welding mode - > 】 【 splice 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 system parameters detect.

Disposal information:
This product is subject to the provision of European Directive 2012/19/EU. The symbol showing a wheelie bin crossed through indicates that the product requires separate refuse collection in the European Union. This applies to the product and all accessories marked with this symbol. Products marked as such may not be discarded with normal domestic waste, but must be taken to a collection point for recycling electrical and electronic devices.

FCC statement:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1)This device may not cause harmful interference, and (2) this device must accept any interference received,including interference that may cause undesired operation

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