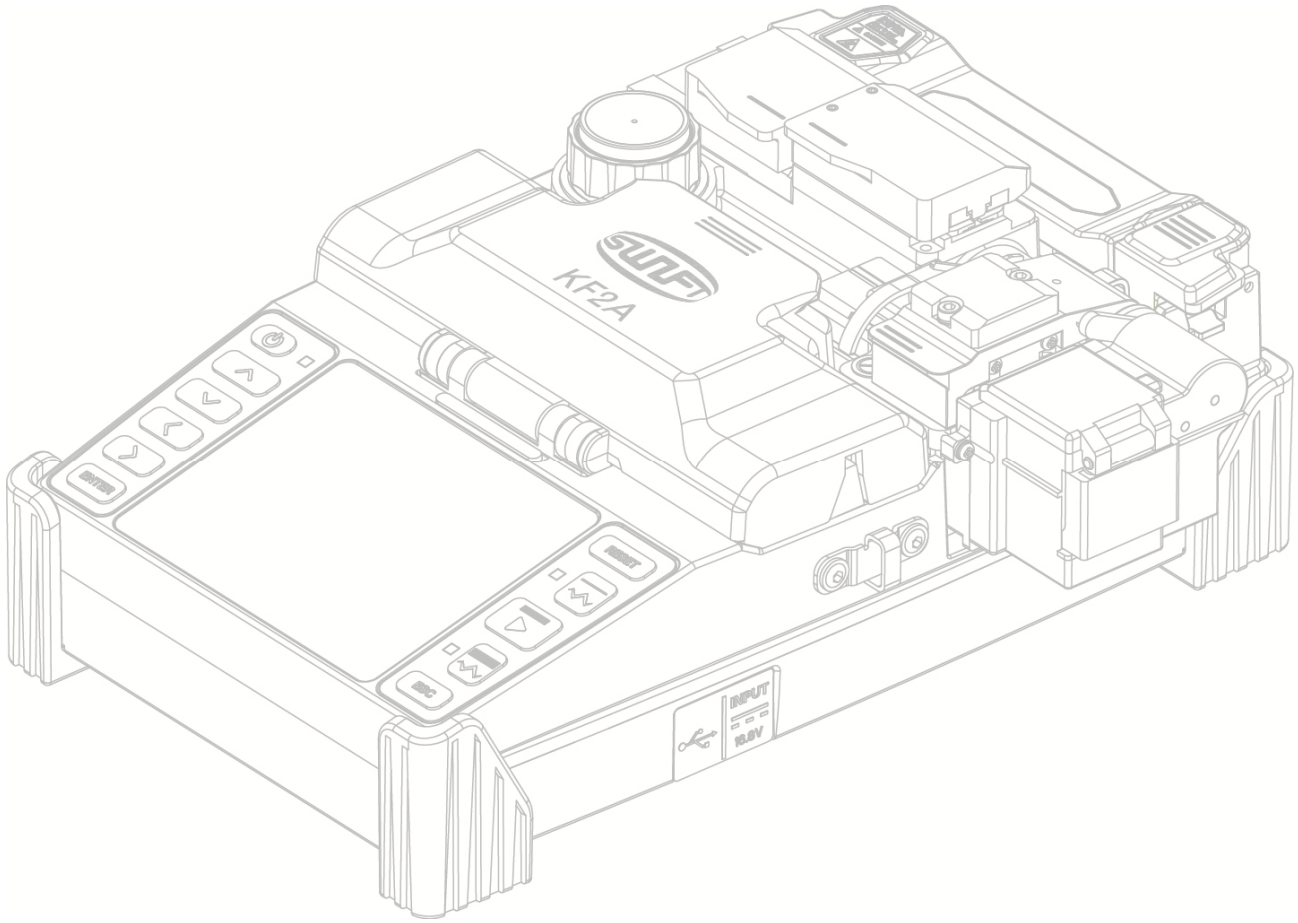
ILSINTECH
HIGH PRECISION TECHNOLOGY



Optical Fiber Arc Fusion Splicer

Read this user manual carefully before running KF2A

SWIFT KF2A

USER MANUAL

WWW.ILSINTECH.COM

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.

Device Type	Notification
A Class Device (Broadcasting and communication device, commercial use)	Users need to understand that this device(A Class) has obtained EMI(Electromagnetic compatibility) and been designed to be used in places other than home.

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Contents

I. Safety instruction

Swift KF2A is designed to be used conveniently on both indoor and outdoor work sites. Its use is easy and simple but make sure to read this instructions prior to prevent accidents and malfunctions before using Swift KF2A. This user guide provides information necessary for safe operation.

Keep this users guide with the product at all times.

Ilsintech does not take any responsibility for the equipment's damage and personal or physical loss incurred due to improper use or alteration.

Warnings

When any of the following occurs during the use, turn off the power immediately and contact to Ilsintech.

- ☐ Smoke, disgusting smell, noise or abnormal overheating.
- ☐ When a foreign substance or liquid falls into the equipment
- ☐ When the splicer falls down or it is damaged

Regarding AC power cord, use the one provided with Swift KF2A. If a power cord other than provided is used, it may incur fire, electrical shock or injury.

Do not touch the Electrodes when power is on. High voltage and high temperature generated from Electrodes may incur serious shock or burn.

Connect the provided AC power cord to a battery. Check if there is any foreign substance on the terminal before connecting it to the AC power socket.
Incomplete splice may incur smoke, electric shock, fire, damage of equipment, serious injury and even death.

Warnings

Use proper power voltage.
AC power for the adapter is AC100-240V, 50~60Hz.
Test the AC power before use. When output voltage of AC power is high or abnormal frequency is generated, the product is damaged and serious injury or even death may be incurred to the user.
AC output voltage should be measured using circuit tester before connecting AC power cable and regular inspection should also be conducted.
Do not pull AC power cord with excessive force, apply heat or transform it.
When a damaged power cord is used, it may incur fire or injury.
Use 3-plug AC power cord and do not ever use 2-plug power cord, cable or plug.

Do not touch AC plug, AC power cord or splicer with wet hands. It may incur electric shock.

Do not disassemble AC adapter, battery or Swift KF2A. Deformation may incur fire, electrical shock or injury.
Refer to the following when using the battery.

- ☐ When an improper battery which is not provided by Ilsintech is used, it may incur smoke, damage of equipment, burn, injury or even death.
- ☐ Do not dispose the battery into fire.
- ☐ Do not charge the battery near flame.
- ☐ Do not give an excessive shock to the battery.
- ☐ When the battery does not completely charge in 2 hours or the green LED is not turned on, stop charging immediately and contact Ilsintech.
- ☐ Do not put anything on AC adapter while charging.

Use exclusively the AC adapter provided. Do not use another AC power cord or battery. Excessive current may incur equipment damage or injury.

Do not use Swift KF2A where there is harmful gas or flammable liquid. Explosion or fire may be incurred due to electrical arc.

Warnings

Do not use compressed air or compressed gas when cleaning Swift KF2A.

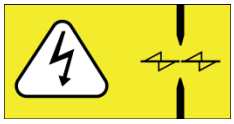
Inspect carry case belt before transportation. If the carry case is dropped due to damage on the belt, it may incur equipment damage or injury.

Wear safety goggles when working on splicing. It is very dangerous if a piece of fiber chips get in skin or eye.

Do not use Swift KF2A around high temperature or flame. It may incur injury or equipment damage.

 : Caution for high temperature

Do not spray Freon gas

 : Caution for high voltage

Cautions

Do not touch sleeve heater or protecting sleeve while sleeve heater is operating or right after heating is completed. It may incur injury due to high temperature.

Do not put Swift KF2A in an unstable place. When the equipment is dropped, it incurs injury or equipment damage.

Swift KF2A should be accurately adjusted and treated in alignment. Do not give it a strong shock, either.
Use a carry case to carry or to keep Swift KF2A. The carry case keeps the equipment from humidity, vibration and shock during storage and transportation and prevents possible damage to KF2A.

Replace the Electrodes in timely manner referring to the following.

- ☐ Designated electrodes should be used.
- ☐ Place new Electrodes to the right position.
- ☐ Replace the Electrodes in pairs.

Abnormal arc is incurred when not following the aforementioned caution.
It may incur equipment damage or an abnormal splice.

Do not use any chemical other than ethyl alcohol (96% or higher) to clean lens, V-Groove, LCD monitor and main body.
Using other chemicals may incur deformation, discoloration or deteriorated performance.

Do not keep the equipment in any environment where the high temperature or high humidity prevails. It may incur equipment damage.

Swift KF2A should be inspected by a qualified expert, or it may incur fire or electric shock.

Discuss with Ilsintech to use the service.

II. Product specifications and component

2.1 Product specifications

Item	Description
Fiber alignment	Fixed V-Groove (Clad to Clad Alignment)
Applicable fibers	0.25mm, 0.9mm, 2.0mm, 3.0mm Indoor cable
Number of fiber core applicable	Single
Fiber diameter	Clad diameter: 125 ㎛, Coating diameter: 150 ㎛~3mm
Cleaved length	5.0mm~16mm
Splice mode	Splice mode: 40, Heater mode: 20
Splice loss	SM: 0.04dB, MM: 0.02dB, DS: 0.06dB, NZDS: 0.06dB
Reflection loss	> 60dB
Splice time	About 7 seconds (Quick mode)
Sleeve heating time	Typical 30sec
Applicable protecting sleeve	40mm, 60mm and micro sleeves
Data storage	Internal memory capable of saving 2,000 times (Saving 2,000 images)
Tension test	1.96N
Size	133(W) x 212(L) x 70(H)mm
Weight	1.35kg
Fiber magnification	X/Y : 200X

Power	DC lithium polymer battery (DC 14.8V, 3400mAh), 100~240V AC adapter
Battery capacity	Approximately 200 cycles
Electrodes life	3,000 splices
Terminals	USB, RCA, external power(DC 12V vehicle cigar jack splice)

2.2 Product package

2.2.1 Standard package

Item	Model name	Quantity
Fusion splicer	Swift KF2A	1
AC adapter	-	1
Spare Electrodes	EI-19	1 set
Battery	KF-3400	1
Cooling tray	CT-01(40mm)	1
Fiver Holder	-	1 set
Users Guide	-	1
Carry case	ILST-SS03(L) (Soft Case)	1
Screw driver	LD-3300	1
USB Cable	-	1

2.2.2 Optional package

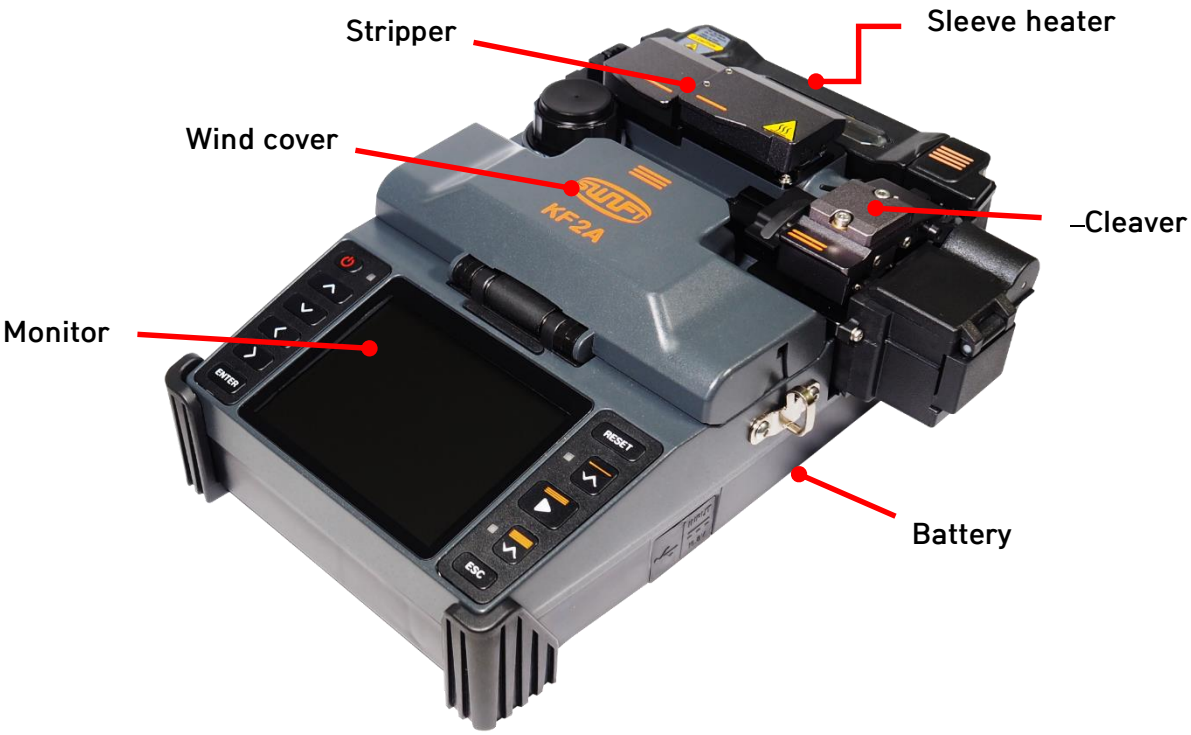
Item	Model name
Battery	KF-3400
Cleaver blade	BI-05
Electrodes	EI-19
Fiber holder	KF-250, KF-900, KF-2.5, KF-IN,KF-SC/FC, KF-LC, KF-ST, KF-L900 (Choose one)
Sleeve	S09-C, S09, S30-C, S30
Sleeve clamp	SC-01
Work belt	WB-01
SOC connector	SC, LC, FC, ST [See Ilsintech website.]
Carrying case	Hard Case
Manual Stripper	CF-02
External Power	DC 12V Available for car cigar jack

III. Product outline

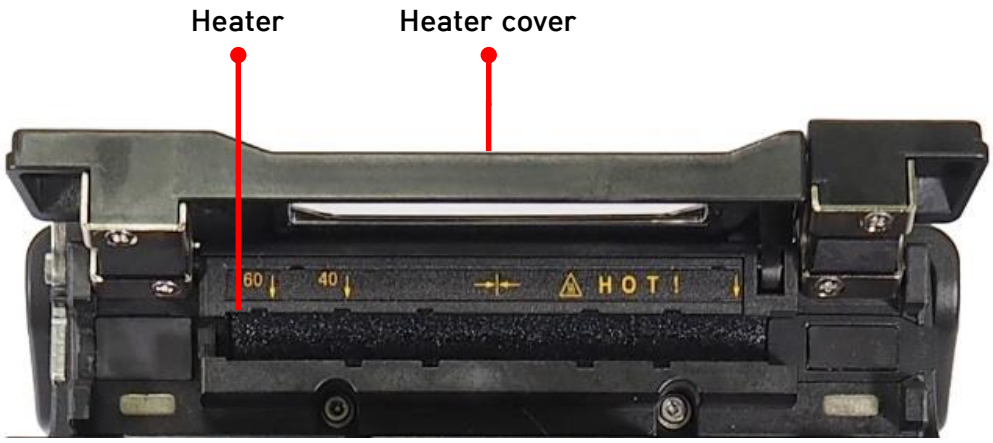
3.1 Function buttons

Button	Description
	Press and hold about 1 second to turn the power ON/OFF. Press and hold about 1 second when power is on and splicer turns off.
	Move the cursor to the left. Move fiber on manual mode and adjusts camera's focus. It loads stripping popup menu.
	Move the cursor to the right Move fiber on manual mode and adjusts camera's focus.
	Move the cursor upwards. It selects each motor on manual mode. It loads splice popup menu.
	Move the cursor downwards It selects each motor on manual mode. It loads heater popup menu.
	Initialize the splice function.,It goes back to the menu screen.
	Complete a selection It goes to the next step on the menu screen.
	Splice execution.
	It goes back to the initial screen. It initializes splice function.
	Turn on the stripper.,When it is ON, the lamp on the left is in red. Press once more when it is ON and the heater is turned off.
	Turn on the heater. When it is ON, the lamp on the left is in red. Press once more when it is ON and the heater is turned off.

3.2 Component name

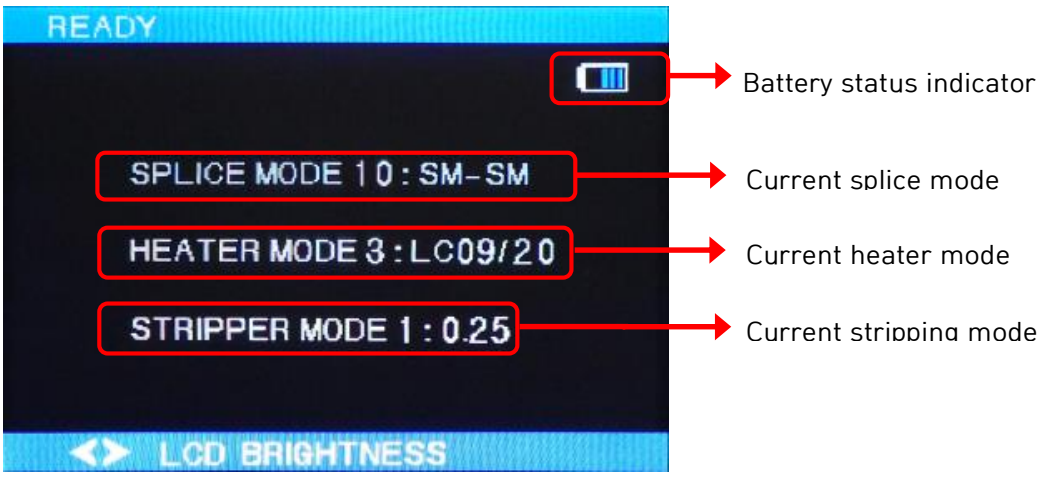



USB
DC OUT


Heater
Heater cover
60
40
HOT!

IV.Instructions for use

The following is the initial screen of Swift KF2A. For accurate splice result, splice mode, stripping mode and heater mode should be properly selected. Basic information on Swift KF2A is displayed on the initial screen. Check whether the proper mode is selected before splice.



4.1 Power supply

Battery pack is built in at the battery chamber. Loosen the bolts at the bottom cover and exchange battery. Please be cautious when you detach the battery from the chamber.

4.1.1 Built in battery

4.1.2 Battery charging

Make sure you check the voltage, frequency and then the DC cable of AC/DC adaptor connects to the DC jack of the battery before charging the battery

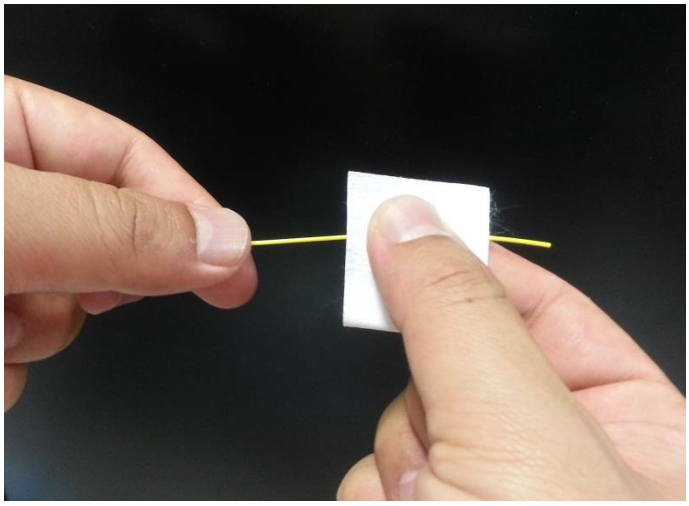
When the battery is fully charged, LED will turn green and power is disconnected, activating protection circuit to avoid overcharge. The power is turned back on as the battery needs to be charged and charging resumes when the DC cable of adaptor is connected to the DC jack of the battery.

4.2 How to turn the power ON/OFF

To turn on the power of Swift KF2A, press  and hold about 1 second with the wind cover closed. After the entire functions including motors are initialized, the initial screen is subsequently displayed as follows. For accurate splice, splice mode and heater mode should be properly selected. Current splice mode, stripping mode and heater mode are displayed at the bottom of the screen.

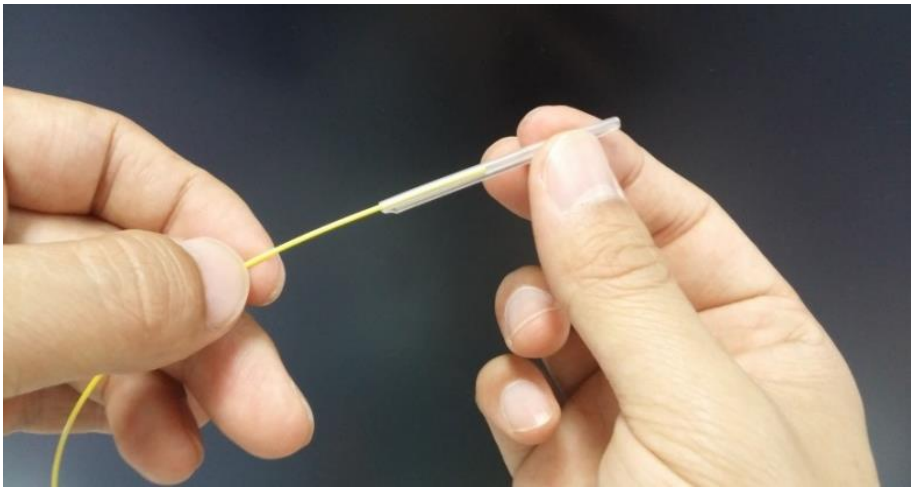
4.3 Fiber cleaning

Wipe fiber clean with soft cloth or cotton moistened with alcohol. Fine dust on the surface of the fiber may increase loss after splice and incur damage on the fiber after heating.



4.4 Inserting fiber to protecting sleeve

Put fiber into the protective sleeve.

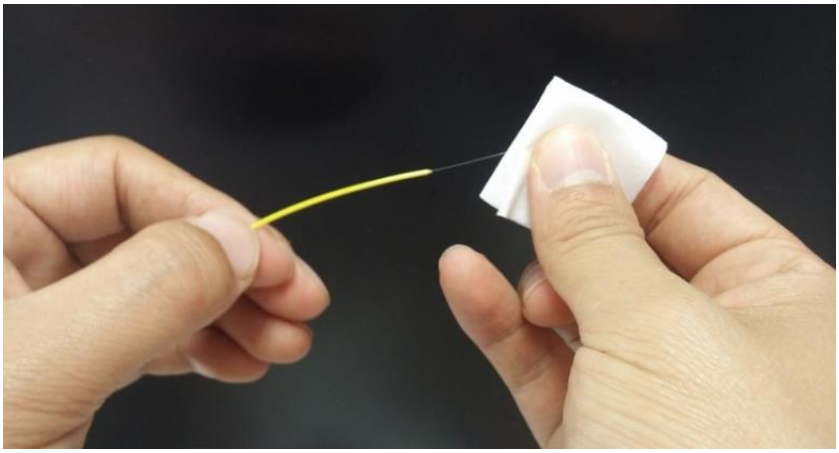


4.5 Fiber stripping

Automatic stripper of KF2A automatically performs accurate stripping with single fiber. This thermal stripper does not incur cracks on stripped fiber with superb tensile force. Stripping length of the fiber can be up to 28.0mm. To keep the equipment's optimal performance, thoroughly understanding and memorizing the instructions is extremely important for proper use.
Also, wipe the fiber clean with soft cloth or cotton moistened with alcohol.

Be careful not to soak this equipment in any kind of liquid.
Keep it clean all the time as it is vulnerable to humidity and dust.
Keep and use it at room temperature as deformation can be happened due to high temperatures.
Be careful to use the product as a breakdown can be happened due to vibration and shock.
When cleaning the product, do not use any organic solvent such as acetone other than alcohol on any of the rubber parts.

Fiber diameter	125㎛
Cable diameter	250㎛, 900㎛
Cleaved length	Max 28.0 ㎜
Heating time	0 ~ 15 sec
Temperature range	60 ℃ ~ 150 ℃
Tensile force after stripping	4kgf



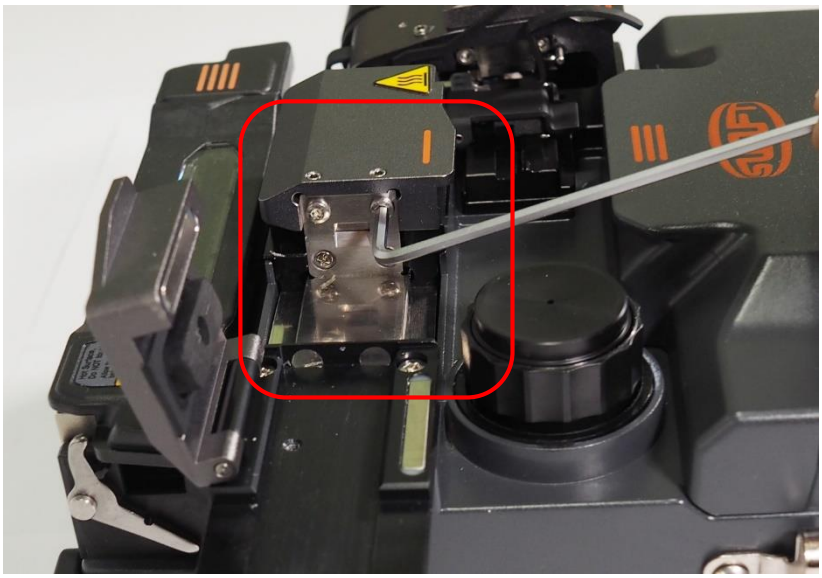
Use ethyl alcohol with a purity level of 96% or higher.

i. Heater warms up. Make preparations by opening up the heater cover and slide cover.
ii. Install fiber to be stripped on the holder as in the figure. The minimum stripping length is 18mm.
iii. Place the holder with fiber on the holder base and close the cover.
iv. When the heater cover is closed, the fiber heats up for the preset time period and the slider moves to the left to strip the fiber.
v. When stripping is completed, open the slide cover and remove the holder. Opening up the heater cover will call back the slider automatically and get ready for the next stripping.
vi. For the next procedure, remove the stripped sheath residue from the heater and blade parts using a soft brush, etc.
Handle the blade part with care because it is easy to be contaminated and deformed.

4.5.1 Maintenance

(1) Blade replacement and adjustment

i. Remove the blade by unscrewing the bolt as shown in the figure when its fails stripping. Removal should be done after moving the slider and it stays to the left position.



ii. Assemble a new blade in reverse order of the disassembly process. (composed as 1 pair of each piece both at the top and the bottom)
Setting and stripping can be done properly with no on the both top and bottom.

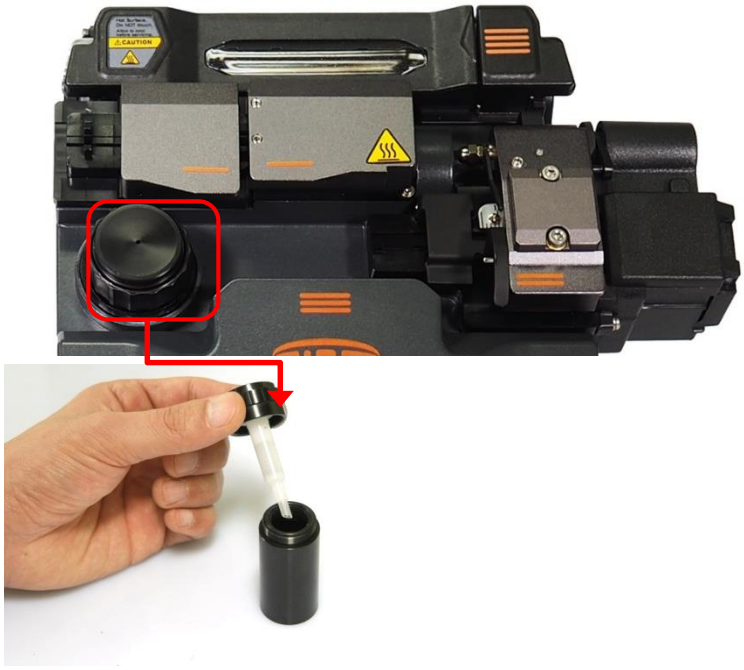
(2) Product handling and storage

i. As the main parts (blade, heater etc.) are closely related to the product's life, be careful with its use, during transportation and storage.
ii. Do not apply excessive force or shock when handling the product.
iii. Keep the main parts clean at all times of use by using a brush.
iv. Maintain the product clean at all times.

4.6 Fiber cleaning

The alcohol dispenser of KF2A releases a fixed cleaning agent for fiber cleaning.

Be careful not to soak this equipment in any amount of liquid
Keep it clean at all times as it is vulnerable to humidity and dust.
Keep and use it at room temperature as it can become deformed due to high temperature.
Be careful when using this product as it may break down due to vibration and shock.
When cleaning the product, do not use any organic solvent such as acetone other than alcohol on any of the rubber parts.



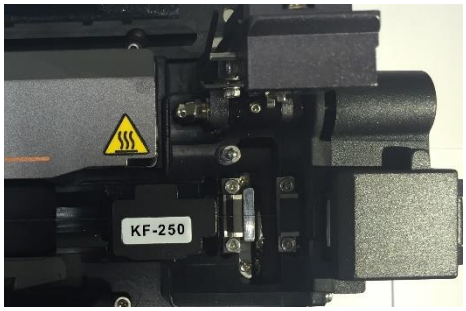
Cleaner

i. When cleaning, arc the cleaning agent by pressing 2~3 times with cleaning cotton swab. Arc the cleaning agent while covering the entire outlet with cotton to prevent it from spraying outwards.
ii. When the cleaning agent is no-longer pumped, refill it by opening the cap.
iii. Use MCC-POC03M as the exclusive cleaning agent.

4.7 Fiber cleaving

The automatic cleaver of KF2A cleaves by 90 degree angle cleaving with a single fiber.
Stripping should be in a proper condition.
Fiber alignment in the holder must be in an appropriate condition.
The blade condition and height of the blade at the cleaver should be maintained in a proper manner.

i. Open the cover and set the holder with the fiber on the holder base and align the stripped fiber straight over the blade. Check the alignment of the fiber.



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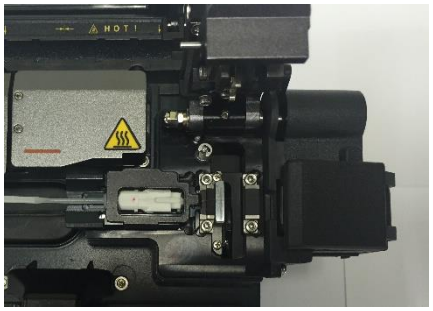
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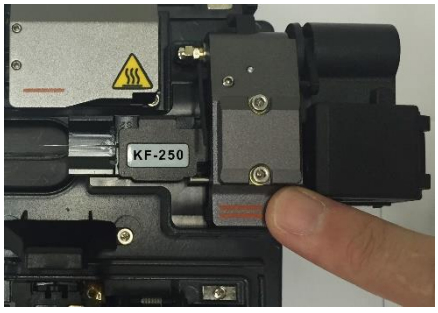
ii. Cleave the fiber by pressing the cover.



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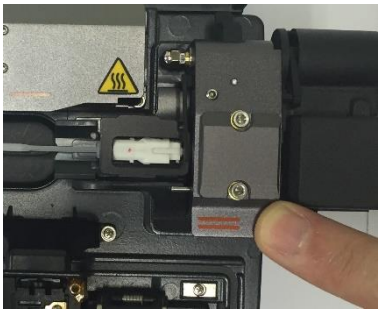
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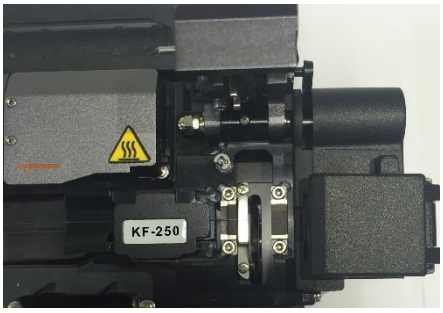
iii. Check the cleaved the end face of the fiber with the cover open.



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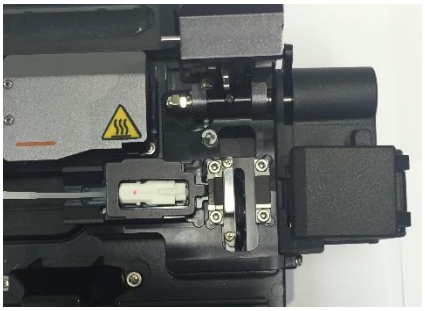
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iv. Remove the cleaved fiber and holder.
Be careful not to leave any dust or foreign substance on the fiber.
Cleaved chips are collected by an automatic chip collector.

For the detailed use of cleaver, refer to the instructions for blade use.

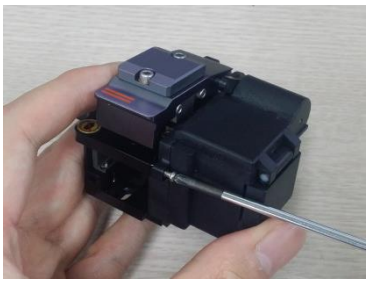
4.7.1 Blade adjustment and replacement

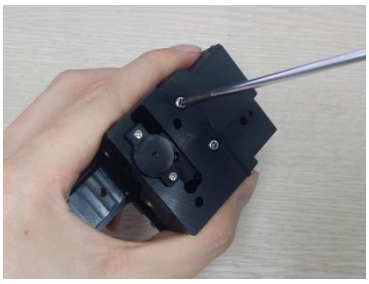
- 1~16 channels are shown on the blade. (Cleaving locations).
- When the cleaving is not normally done, wash the blade's edge and rubber pad both at the top and the bottom with cotton swab moistened with alcohol. (Do not use acetone or solvent when cleaning the rubber pad.)
- If cleaving continuously fails, change the channel or replace the blade as the life of the blade has ended.

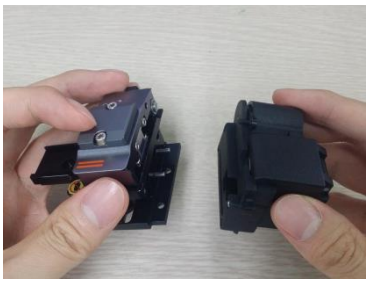
4.7.2 How to change blade channel (cleaving locations)

i. Remove the cleaver from KF2A main body using a hex wrench as in the figure.

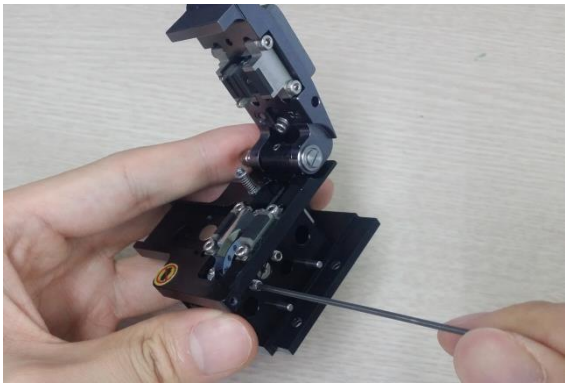
ii. Then remove the chip box using a hex wrench as in the figure below.



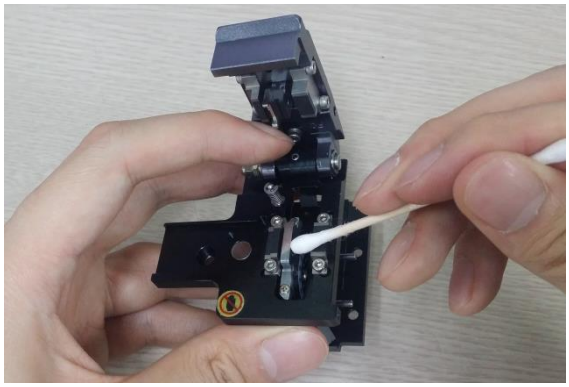




iii. Open the cover; with the slider advanced, then unscrew the set screw using a wrench as in the figure.

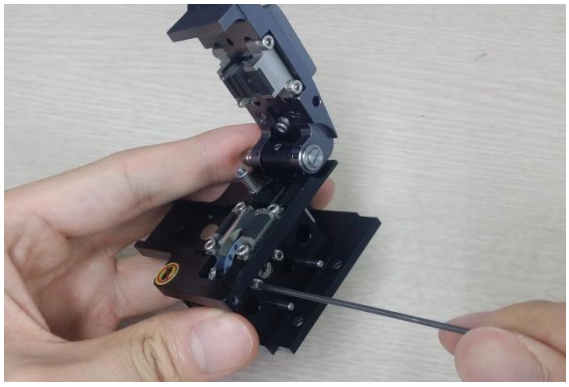


iv. Turn the blade counterclockwise by 1 mark with a cotton swab. Assembly is done in reverse order.



4.7.3 Blade replacement

i. With cleaver removed from KF2A, unscrew the set screw using a wrench as in the figure.



ii. Insert a wrench from the bottom of the cleaver as in the figure and properly unscrew the set screw from the slider. Slider should be rear warded.

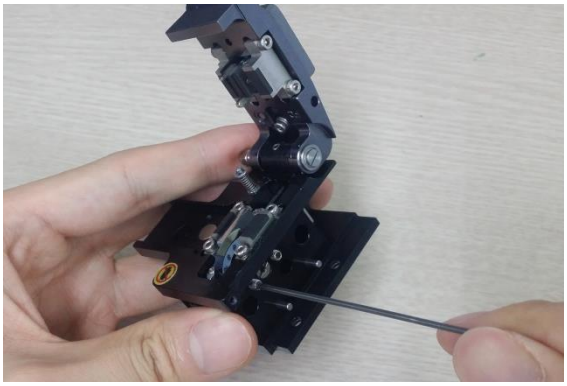
iii. Turn the wrench bolt; put it in Cam Pin and then remove it from the slider by pulling with a tweezers, etc.

iv. Pay special attention in order to prevent blade damage while replacing it. Assembly is done in reverse order of disassemble and the set screw should be firmly tightened.

4.7.4 Blade height adjustment

i. Insert a wrench in the bottom of cleaver as in the figure and properly unscrew the set screw of slider. Slider should be back warded.

ii. Turn the Cam Pin with flat – headed screwdriver to adjust the blade's height.
Turning clockwise : Blade going up
Turning counterclockwise : Blade is going down



When the blade is adjusted to the proper height, tighten the set screw of slide. The height adjustment of the blade is closely related to cleaving quality .

4.8 Sleeve-Heater

The sleeve heater of KF2A reinforces spliced point of the single fiber.
The quality of fusion splicing on the fiber should be good.
Fiber that sleeve tube is inserted to heater should be properly aligned and installed.
Heater cover should be closed while heater is on.

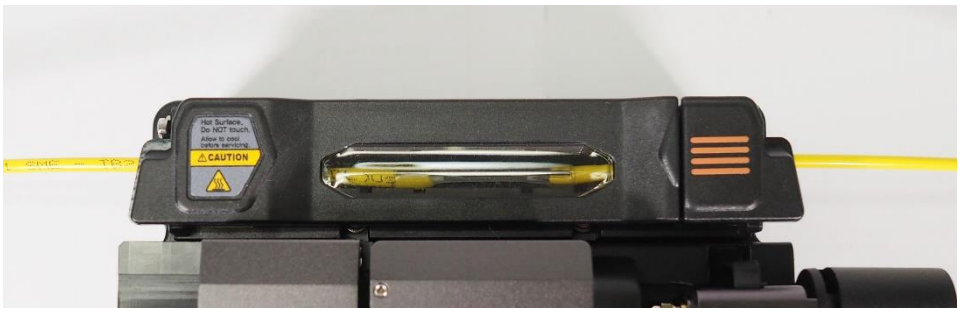
Cable diameter	Φ250㎛, Φ 900㎛, Φ 2.0㎜~ Φ 3.0㎜
Sleeve length	standard 32mm
Sleeving time	20~35 sec
Temperature range	130˚C ~ 200 ˚C

i. Open up the heater cover to start.

ii. Place the sleeve tube on the spliced point. Make sure center of the sleeve tube covers the spliced point. Load the fiber into the heater.
For the fusion splice on connectors, load it into the right end of the heater

and press the sleeve tube into the heater as tight as possible.

iii. After settling the fiber, turn on the heater by pressing  .
. (Heating time 20sec)



iv. Remove the sleeve protected fiber by opening the cover when the cooling is completed.

The better positioning of the fibers will shorten heating time

4.9 Splice procedure

The status and cleaved quality of the fiber can be monitored by using an image processing system by Swift KF2A. For better splice result, however, visual inspection is required also.

In auto mode, the splice procedure begins automatically as the wind cover is closed.

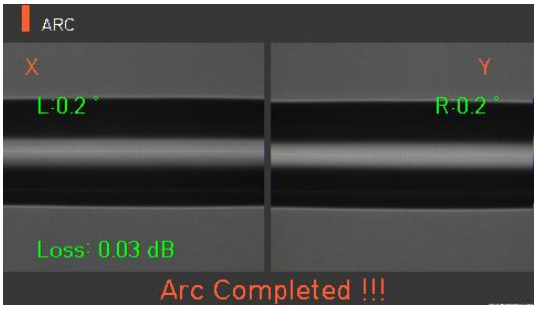
i. Fibers installed on the splicer advance toward each other and stop. The fibers align once cleaning arc is done. After that, the splicer checks ~~cutting~~ the cleaved angle of each fiber, the shape of the end faces, contaminations and so on. When the measured cleaved angle is bigger than the preset value or damage is detected on fiber, error message is displayed on the screen. And splice procedure stops as well. Even if there is no error message displayed, visual inspection on the monitor screen is always recommended.

ii. Fibers are aligned cladding to cladding after inspection. Deviation on clad axis can be displayed on screen.

iii. After alignment completes, arcing is conducted to splice fibers.

iv. After splicing is completed, the estimated value of loss is displayed on the screen. The estimated value of splice loss is subject to various factors related to error. These factors related to an error affect the estimation and calculation of estimated loss value as well. Calculation of estimated loss is based on factors such as MFD. When estimated loss value exceeds the preset value and error message is displayed on the screen. The error message is also displayed when the spliced fibers are too thick or thin or when bubbles are generated on the spliced point. If the splice result shown on the screen is not considered good enough, it is recommended to conduct splicing again

v. The splice result is saved as follows.
When splice completes, splice result is automatically saved.



4.10 Removing the spliced fiber

i. Open the cover of the sleeve heater.
ii. Open the wind cover.
iii. Hold the fiber on the left and open the clamp on the left.
iv. Open the fiber clamp on the right.
v. Hold both sides of spliced fiber and separate the fiber from Swift KF2A with care.

4.11 Heating protection sleeve

i. Move spliced point to the center of the protecting sleeve. Place the protected pin in the sleeve with face down.
ii. Place the protecting sleeve at the center of sleeve heater.
iii. Hold and put down the both fibers as shown in the figure then the heater cover will automatically close.
iv. Heating starts by pressing  .
v. LED is turned off when heating is completed.
vi. Open the heater cover and take out the fiber. Do not touch the protecting sleeve or heater at any point during or right after heating.
vii. Conduct a final inspection on whether there are bubbles, fragments or any dust on the sleeve.

4.12 Use of Work Belt

The work belt of Swift KF2A is a type of auxiliary equipment that combines with its main body to facilitate working at a manhole, utility pole, etc.

4.12.1 Use of Work Belt

Work belt components

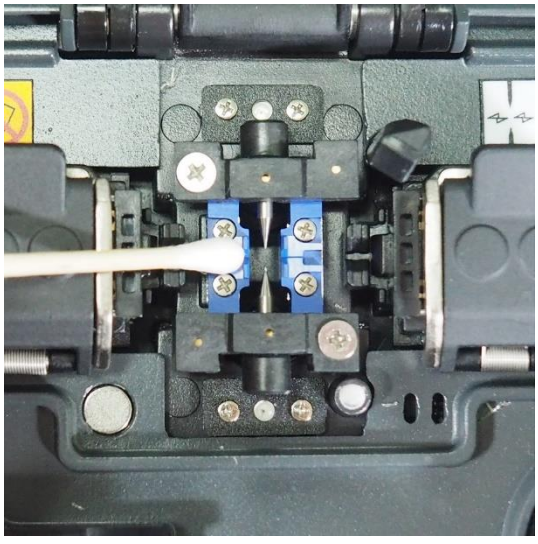
V. Maintenance of splice quality

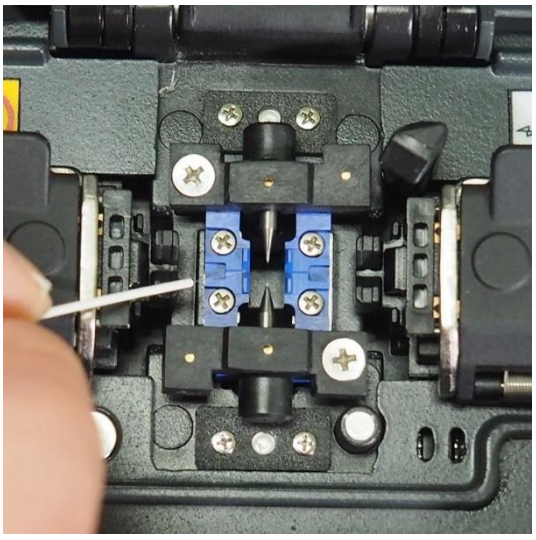
5.1 Cleaning and Inspection before splice

5.1.1 V-Groove cleaning

When the inside of V-Groove is contaminated, splice quality may deteriorate. Thus, it is important to regularly inspect and frequently clean the V-Groove as follows.

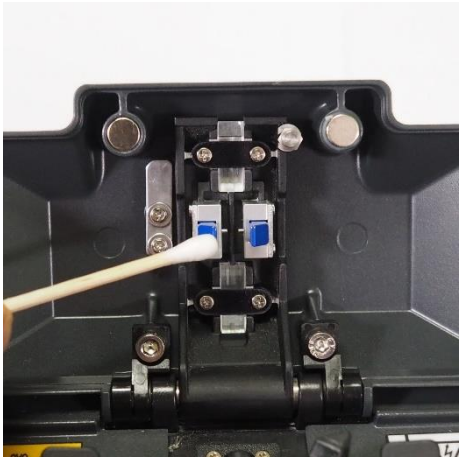
i. Open the wind cover.
ii. Clean the V-Groove using a cotton swab moisten by alcohol and any proper cleaning agents. Remove the remaining alcohol from the V-Groove using a clean and lint free dry cotton swab.
iii. When a foreign substance is not removed with cotton swab, clean it with the tip of a cleaved fiber and then repeat the step above.





5.1.2 Pusher Block cleaning

Pusher Block contamination incurs poor splice quality due to irregular pressure apply to the fibers Thus, it is important to frequently inspect and regularly clean it.

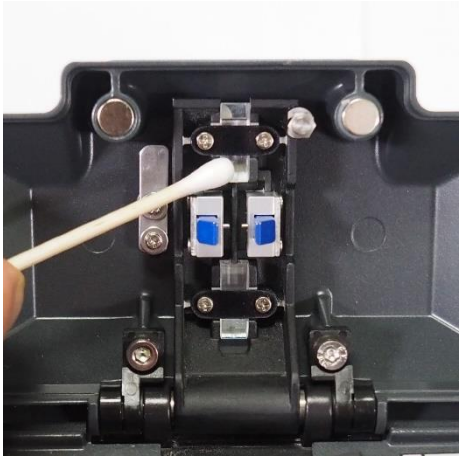


5.1.3 Cleaning Prism

Contamination of the prism creates inaccurate monitoring about the fiber cladding location, which causes high loss rate. Please clean up the prism as follows.

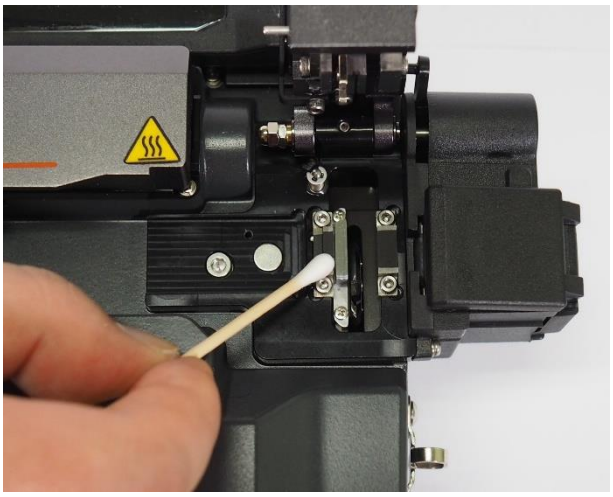
① Clean up the prism with alcohol dampen cotton swab. The dry out the alcohol with lint free, dry cotton or cotton swab.

② Prism must be maintained regularly and kept clean from lines on it and any sort of contaminants.



5.1.4 Cleaver cleaning

If the cleaver's blade and rubber pads are contaminated, the cleaving quality may deteriorate. In turn, the splice loss rate can be consequently increased. Thus, clean the cleaver blade and rubber pad frequently using a cotton swab moisten by alcohol. This is critical to keep the cleaved quality of the-fiber. (Do not use acetone or solvent when cleaning the rubber pad.)



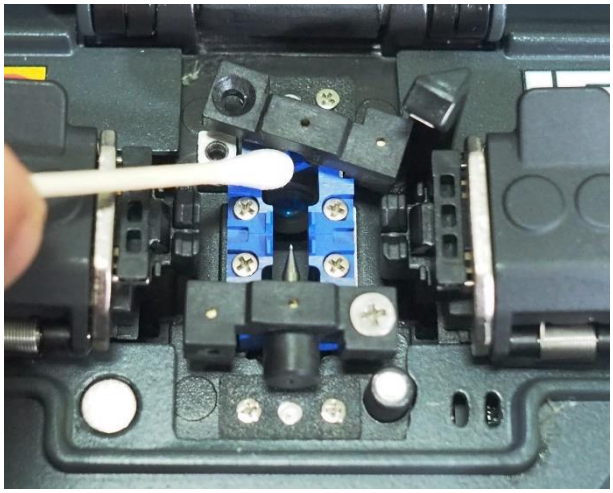
5.2 Regular inspection and cleaning

To ensure splicing quality, regular inspection and cleaning is required.

5.2.1 Object lens cleaning

Contamination on object lens' surface disturbs the identification of fiber core location and consequently incurs high splice loss. Thus, 2 object lenses should be kept clean at all times. If accumulated dust stays for a prolonged period, it may be difficult to remove. Therefore, clean the lens frequently as follows.

i. Turn the power off before cleaning the object lens.
ii. Separate the Electrodes.
iii. Clean it using a soft cotton swab moisten with alcohol in circular motion from the center as in the figure below. Dry out alcohol remaining on object lens' surface using a clean, lint free dry cotton swab

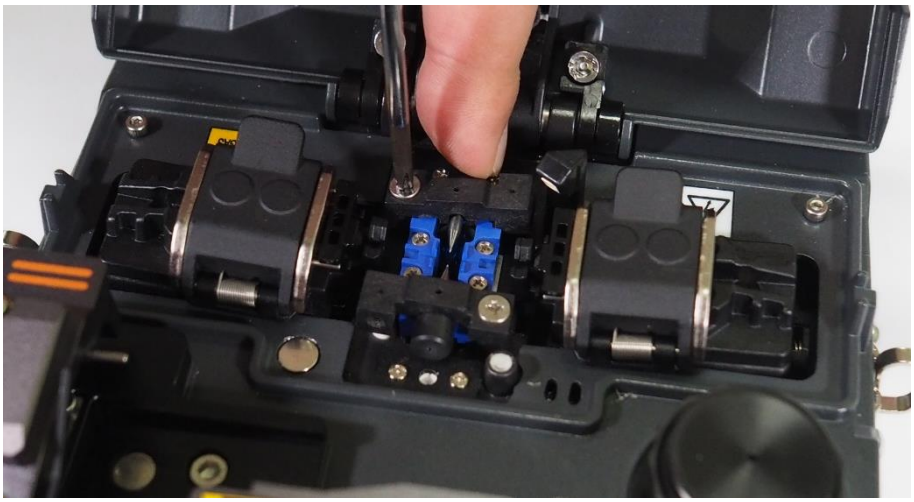


iv. Surface of object lens should be clean without any line or stain.
v. Reassemble the Electrodes.
vi. Turn the power on; check whether there is any line or stain on the monitor and; conduct a self-diagnosis.

5.2.2 Electrodes replacement

It is recommended to replace the electrodes after using appx 3,000 times. If the number of arc exceeds the replacing cycle, a message for electrodes replacement is displayed on the screen. Without electrodes replaced splice loss increases and the tensile force at the splicing point weakens.

i. Turn the power off when replacing the electrodes.
ii. Open the wind cover and unscrew the clamp screw of the electrodes block.



iii. Remove the electrodes block and the electrodes.

iv. Clean the electrodes carefully by using a soft cotton swab moisten by alcohol, then install it.

v. Turn the power on and conduct electrodes stabilization process in the menu.

VI.Menu

6.1 Splice Mode

The optimized settings for an accurate optical fiber splicing are composed of following splice elements which rely on the combination of fibers and differences of each fiber.

- Elements to adjust discharge and heating
- Elements to calculate estimated loss
- Elements to align fibers and adjust splicing process
- Limit values which are used for generating an error message

The connection mode for the best combination of optical fiber is already saved. These elements are saved on database and can be used through copying on the user program part. These connection elements can be edited for accurate combination of optical fiber.

Data base

[Connector splice mode]

Splice mode	Description
SM Connector	Splice mode for basic single mode fibered connector.
G657 Connector	Splice mode for basic single mode fibered connector.
NZ Connector	Splice mode for NZDS fibered connector
DS Connector	Splice mode for DS fibered connector
MM1 Connector	Splice mode for multimode fibered connector with core size at 62.5um.
MM2 Connector	Splice mode for multimode fibered connector with core size at 50um.

[Regular optical fiber splice mode]

SM ITU-T G652	Splice mode for basic single mode fibered connector
MM ITU-T G651	Splice mode for multimode fibered connector with core size at 50~62.5um.
NZ ITU-T G655	Splice mode for NZDS fibered connector
OM3-OM3	Splice mode for OM3 to OM3 multimode fibered connector.
OM4-OM4	Splice mode for OM4 to OM4 multimode fibered connector.
OM3-OM4	Splice mode for OM3 to OM4 multimode fibered connector.
OM2-OM3	Splice mode for OM2 to OM3 multimode fibered connector.
OM2-OM4	Splice mode for OM2 to OM4 multimode fibered connector.
MISC	Other splice modes not shown above are stored at database in the splicer. New splice modes are updated as available. Please contact Ilsintech for the new splice mode available..

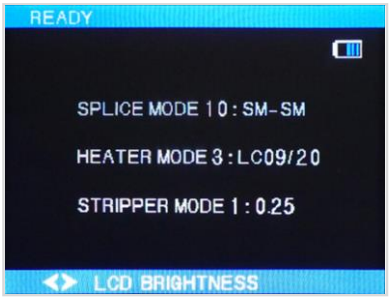
Selection of a splice mode

Select an appropriate splice based on the type of the optical fiber to be spliced.

① Press ENTER key on the initial screen to open menu
When splice mode is selected, available splice modes are displayed.

Ready

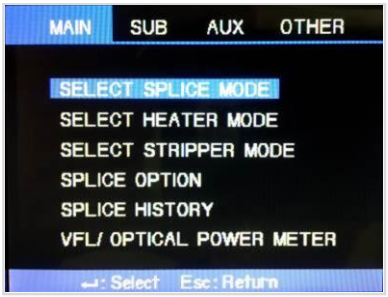
Initial Screen



② Use up or down key to move and select a splice mode by pressing ENTER key.

Set

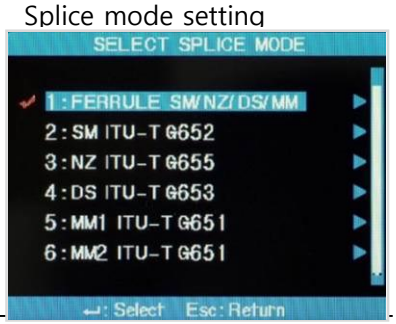
Splice mode menu



To leave Select Splice Mode, press ESC key.

Set

Splice mode setting



[Generation of a splice mode]

Initially 14 splice modes are saved in the unit and other modes are presented as a blank.

Select a blank splice mode, press right direction arrow and then, push ENTER key. The types of fiber are displayed. Select one of them to copy. Press ENTER key two times to execute it. Check the name and type of the fiber in the designated splice mode and press ESC key.

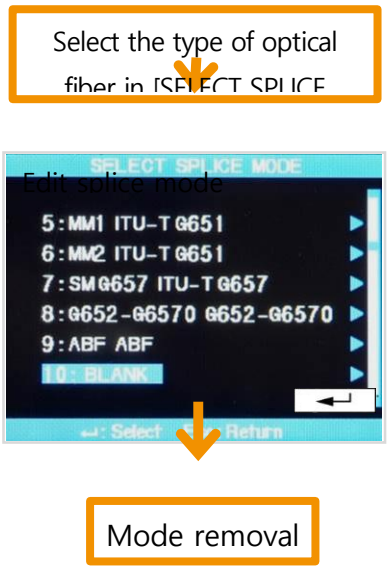
[Removal of a splice mode]

A splice mode can be removed. Follow below instruction.

① Select a splice mode and press right direction arrow to move to the edit menu of splice modes. Select the type of fiber by pressing ENTER key.

② Select "0:BLANK" and press ENTER key.
- Mode number 1 ~ 14 cannot be deleted.

Mode number 1 is automatically selected after completing the removal of a splice mode.

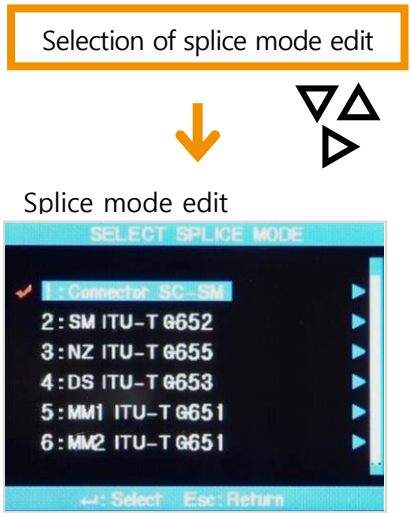


Splice elements composing each splice mode can be modified. Amount and time of discharge, which are the most important two factors, can be modified by following way.

① Move the cursor to modify a splice mode in splice mode edit menu. Press right direction arrow to open splice mode edit.

② Move the cursor using up or down key to change elements.

③ Press ENTER to select an element and use left or right key to change the value of the element. Modified value can be saved by pressing ENTER.



Parameters for 14 basic splice modes..

The limited number of parameters are displayed on the screen for simple operation. The additional parameters not shown hereunder are configured to optimum at the factory.

Parameter	Description
Fiber types	Displays splice mode store at the database. Selected mode from the modes in the database is to be copied to splice mode at user program area.
Splice Method	Displays splice method.
Cleaved angle	Displays error message as cleaved angle of left/right fiber exceeds the pre-set threshold
Loss rate	Displays error message as estimated loss exceeds selected loss value.
Arc Volume	Arc volume is set per each mode.
Arc Time	Arc time is set per each mode. As auto mode is selected, automatically performs arcing according to the fiber type.
Cleaning arc time	An arc during short time span burns and cleans contaminants on the fiber. You may change the time span with this mode.
Re-Arc time	In some cases slice loss can be improved by additional arcing. You may change the time span with this mode.
Variation	Sum of the splice loss monitored from first splice and increment of loss afterwards. When you splice special fiber or different type of fiber other than you normally do the splice, even with the optimal splice condition, high loss might be measured. In order to have the same estimated loss and actual loss, you will have to configure minimum value for the actual splice loss.

Splice mode edit

Splice mode edit is used for user to configure many splice modes to make the best result out of the splicing environment. The following describes utilizing a variety of parameters and the function.

Parameter	Description
Fiber type	Displays splice modes stored in database, allowing to select proper mode. Copy and edit the splice modes stored in the database to use it when splice.
Splice method	Displays splice method
Alignment	Configures fiber alignment method "Auto": Motor aligns automatically. "Manual": Motor aligns manually.
Auto power	Configures power save function
Tensile strength test	When "ON" is selected, runs tensile strength test after the arcing or as wind cover is opened up while SET key is pushed..
Cleaved length	Displays error message as cleaved angle of left/right fiber exceeds the pre-set threshold
Loss rate	Sets the range of estimated loss error. Error message will be displayed as estimated loss is higher than the range.
Fiber angle limit	Error message will be displayed as cleaved length of two sliced fibers exceeds the configured limit.
Cleaning arc time	Performs to remove contaminants on the fiber. The time span is configured for the cleaning arc time.
Distance	Configures end face distance between left and right fibers during the alignment and initial arc time.

Center Location	Configures fiber location at the center to splice. In case the MFD of left/right fiber, you may adjust center location to improve splice quality.
Initial Arc	Configures initial arc amount before the fiber advances to align. If the initial arc amount is low, this will result in offset taking place due to bad end face angle. If the amount is too high, the fiber may be burnt or become rounded end face, causing bad splice loss.
Initial Arc Time	Time between the start of splice and fiber advancement. Long initial arc time suggest initial arc amount is hight.
Overlaps	Configures degree of overlaps while fiber advancement. As initial arc amount is low or short initial arc time happens, you may lower overlaps, and as initial arc amount is high or long initial arc time happens, you may higher overlaps..
Arc Vol 1	Major arc amount can be adjusted in 2 steps. The first step is Arc Vol1 and second is Arc Vol2. Arc Vol 1 is to be configured at this phase.
Arc Time 1	Configures Arc Time 1
Ac Vol 22	Arc Vol 2 is second step of arcing. Configures Arc Vol 2 in this phase.
Arc Time 2	Configures Arc Time 2. Arc Time 2 is set as "OFF" in default. You may set pretty long arc time, but as Arc Time 1 and Arc Time 2 exceeds 30 seconds, it may damage electrodes.
Arc Time ON	While Arc Time 2 arcs, you can configure arc amount by switching between "ON" and "OFF". "ON" time in Arc Vol2 can be configured in this phase. To re-arcing, Arc Time "ON" is always configured.
Arc Time OFF	Configure how long Arc Vol2 is turned off. When Arc Vol2 arcing is halted, re-arcing also can be halted. If you require continuous re-arcing, configure this variable at "OFF"

Re-Arc Time	Configures re-arcing time.. In Splice Mode Edit, this allows re-arcing amount and Arc Vol2 at the same arc amount automatically. When Arc2 is set as "ON" and "OFF", re-arcing is automatically set at "ON" and "OFF"
Pulling splice	Sometimes, the splice loss rate increases when the fiber becomes thinner. This function has set to ON. The shape of pulling is decided by following three parameters.
Waiting time until pulling	Sets the time from the end of fiber moving to the beginning of pulling the fiber.
Pulling speed	Sets the speed of pulling the fiber.
Pulling time	Sets the time duration of pulling the fiber.
Deviation	In order to have estimated splice loss and actual splice loss identical, you have to configure minimum value for the actual splice loss..

[Mode Title Insert / Footnotes / Password]

Character list is displayed when selecting Mode Title / Footnote / Password

① Select necessary letters using ▽△◁▷ and press ENTER key to confirm the selection.

② Once character input is completed, move the cursor the [FINISH] and press Enter key.
If a correct password is entered, the screen moves to next menu; however, if an incorrect
one is input, the entered password is displayed again and screen moves to previous display.

6.2 Heater Mode

A Heater has 11 modes.
The most suitable heater mode needs to be selected before using a protection sleeve.

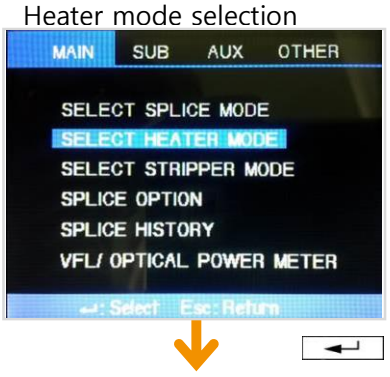
For different sleeve tubes, an operator could utilize the best mode. The reference of this mode can be found in database. The user can put a mode into the user's program after editing and copying or can edit in user program mode.

Heater mode selection

Selects the most appropriate heater mode for the fiber protection sleeve in use

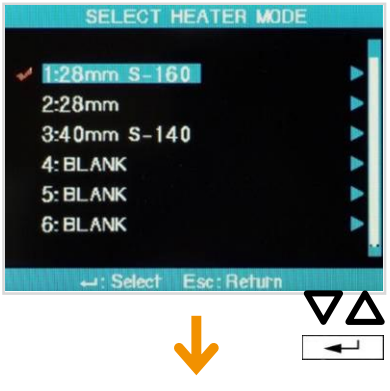
① [Heater Mode Selection] menu is displayed when [Heater Mode Selection] is selected in main menu.

Heater mode selection



② Select a heater mode using ▽△cursor and press ENTER key to set.

Heater mode selection



Selection

Create and delete heater modes.

Creating and deleting heater mode is same as doing splice mode.

Heater mode modification

The heater mode menu saved in heater mode can be changed.

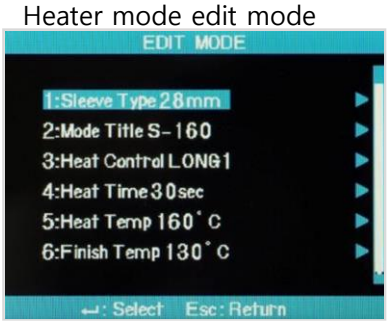
① Select Edit mode in [Heater Mode Selection] menu using the ▷cursor. [Heater Mode Edit] is displayed when is pressed.

② Use △ or ▽ to move the cursor to the setting of a parameter to change and press Enter key.

③ Move to the mode to use by pressing ◁ or ▷ and press ENTER key.

[Heater mode menu selection]

Heater mode edit mode



Variables	Description
Sleeve type	• Sleeve type selection • All the contents in heater mode list are displayed. • Users can either copy program mode or select from the list.
Method name	• Describes the heater mode in the [Sleeve Type] screen.
Heater adjustment	• Sets heater adjustment sequence. • LONG 1: Use of 60mm protection sleeve. • LONG 2: Cut by 8mm and use 60mm sleeve tube. • MIDDLE: Use of 40mm protection sleeve • MICRO 1: 34mm micro sleeve • MICRO 2: 34mm micro sleeve or a little longer sleeve • MICRO 3: 34mm micro sleeve or a little shorter sleeve
Heating time	• Sets heater time • Heating time is automatically adjusted depending on the surrounding temperature. Heater time could be set to be longer or shorter than the time set in [Heater Time].
Heater temperature	• Sets heater temperature.
Ending temperature	• Sets finishing temperature. • Sleeve can be removed after finishing heating.

- Do not set longer than 200 seconds of high temperature (over 150℃) heating time.
- Do not continuously use the heater.

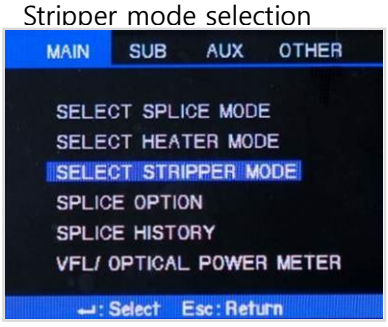
6.3 Stripper Mode

There are 7 stripper modes.
Since the types of fibers are varied, select the most suitable stripper mode should be selected.

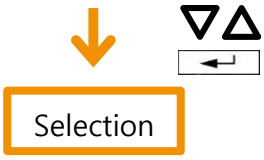
Stripper mode selection

① [Select Stripper Mode] is selected in [Main Menu] to display stripper modes.

Stripper mode selection



② Select the stripper mode ◁ ▷ cursor and set with ENTER key.



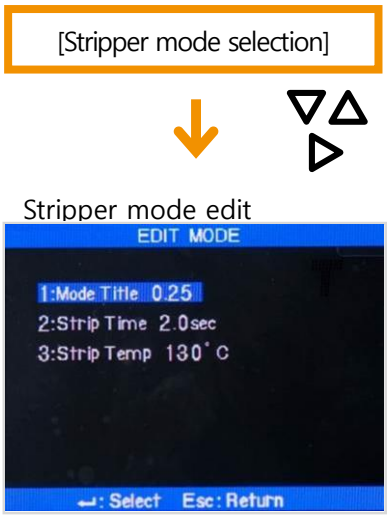
Create and delete stripper mode

Creating and deleting heater mode is same as doing splice mode

Edit Stripper Mode

The stripper settings saved in stripper mode can be changed.

① Select edit mode within [Stripper mode selection] menu using ▷cursor.
[Stripper mode edit] is displayed upon pressing cursor.



② Press △▽ to move cursor for parameter setting to be changed and select ENTER key.

③ Move to the mode to be used with ◁ ▷ cursors and select ENTER key.

Parameters	Description
Modes	• Matching the sorts of optical fiber • All stripping lists are displayed. • The user may copy or chose program mode required or wanted.
Stripping time	• As stripping time can be selected between 0sec ~ 15.0sec, select proper one for optical fiber sheath.
Stripping temperature	• Set stripping temperature.

6.4 Optional Splice Function

Allows setting general parameters of every mode for splicing and tube heater operation.

① Select [Splice Option] in main menu to display menu list for splice on the screen.

Splice option

Splice setting

② Users are allowed changing some of the parameters.

Menu Configuration

Parameters	Decscription
General	
Auto Execution	When you configure Auto Execution to "ON", this will enable automatic splice process. As you place the fiber to the splicer and close dust cover, splice process will start automatically.
Temp. Pause	When you configure Temp. Pause to :ON", the splicer will stop right after the fiber alignment. Push "SET" , then splice process will start. Displays end face while it's paused.
Auto Heat	When you configure Auto Heat to "ON", sleeve heater will be activated after the splice process is done.
Displaying the data	
Cleaved Angle	When you configure Cleave Angle to "ON", this will estimate the left and right cleaved angle of the fiber and displays the result.
Axis Deviation	When you configure Axis Deviation to "ON", this will display alignment deviation of the both fibers.
Ignoring splice error message	
Fiber Thickness	When you configure to "ON", this will display error message when the fibers are too thin or thick.
Fiber Bubble	When you configure Fiber Bubble to "ON", this will display error message when the bubble on spliced fiber takes place.
Loss Rate	When you configure Loss Rate to "ON", this will display error message when splice loss is higher than standard loss.
Fiber Cleaved Angle	When you configure Fiber Cleave Angle to "ON", this will display error message when cleaved angle is higher than standard angle.
Dirty Fiber	When you configure Dirty Fiber to "ON", this will display error message when the fiber is contaminated and/or prism/lens is dirty.
Fiber too long	When you configure Fiber too long to "ON", this will display when the fiber is placed too long at the v-groove.

Arc Compensation	
Pressure	When you configure Pressure to "ON", this will compensate automatically the difference in air pressure.
Temperature	Applies arc compensation value by the temperature. The user can't inactivate the function.
Condition of Fiber	
Distance adjustment	Adjust the distance between two fibers. The user can't inactive the function.
Align	Automatically align the fibers. The user can't inactive the function.
Arc	Automatically perform arcing. The user can't inactive the function.
Estimation	Automatically displays estimated loss. The user can't inactive the function.
Miscellaneous	
Auto fiber advance	Fiber advances automatically and align. The user can't inactive the function.
End face defect	Performs automatically end face defect test. The user can't inactive the function.
Temp. Pause and re-align	Pause and align.. The user can't inactive the function.
Max. No. of re-arcing	Activates number of re-arcing adjustment. The user can't inactive the function.

6.5 Splice Result Saving

This equipment has memory space in which 2000 splice results can be saved.

Splice result display

Splice results saved in the memory can be displayed, added and edited.

Saved data can be downloaded to PC.

① Select [Splice Memory] in main menu.

Splice result saving

② Select [Data Display].

Splice result setting

③ Move the cursor to the memory number of the data to be displayed to set a memory number.

④ Splice result data is displayed on the screen.

Deleting splice result

A part of or an entire splice result saved in the memory can be deleted.

① Select [Clear Memory] in [Splice Memory] to display menu for deleting splice results.

[Clearing entire splice results]

② Move to [Clear All Data] and press ENTER key. Yes or No selection appears.

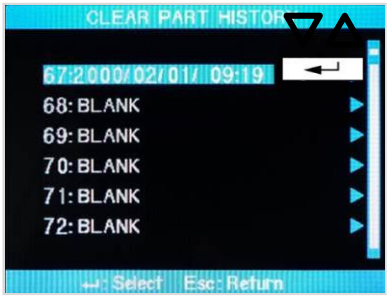
③ If ENTER key is pressed one more time, entire splice results are removed

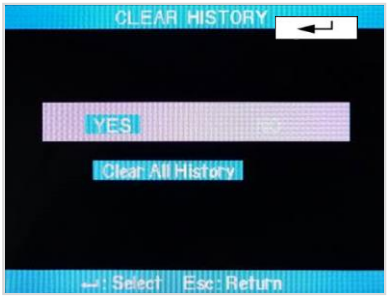
[Clearing a part of splice results]

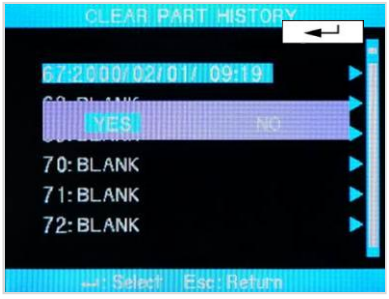
② Select [Clear Part Memory] and press ENTER key to move to [Clear Part Memory] menu.

③ Set the range of data (from the start number to the last number to be removed) using ▽△◁▷ and press ENTER key to delete those selected ones. The empty space after clearing is filled with the first data coming after the last data deleted.

Select [Splice Memory]





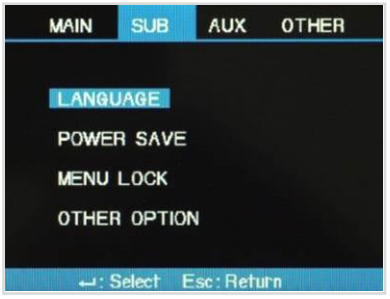


VII.Sub menu

This menu is composed of a set of sub menu, each of which controls detailed function of the equipment.

① Press ENTER key and cursor to move sub-menu.

② Each setting can be selected and modified.



7.1 Language

Language change

① Select Language in sub-menu and press ENTER key.

② Select required language format and press ENTER key.

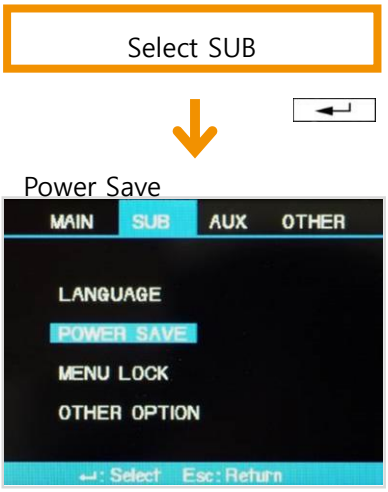
7.2 Power Saving Function

Power saving function is essential for energy preservation. When the battery is used without setting of power saving function, the number of connections decreases so it is recommended to use power saving function.

Setting power saving function

① Insert power supply unit into the equipment and turn on the power.

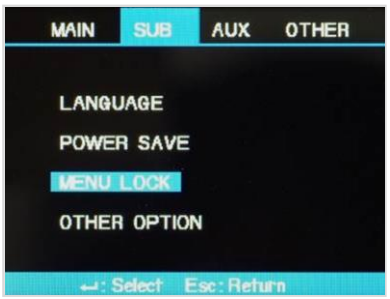
② Select the power save mode displayed in adjustment menu on screen when using power supply unit.



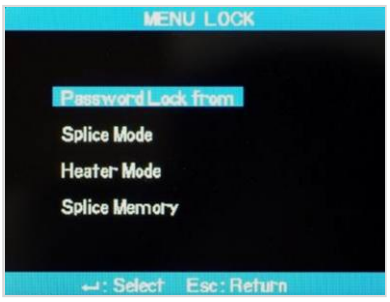
③ LCD monitor is automatically turned off when fusion splicer is not in use for a certain period of time. Make sure to maintain this setting while battery is being used.
LCD monitor will turn on upon pressing ENTER key.

7.3 Menu Lock

① Select Menu Lock in [Sub Menu] and press ENTER Key.



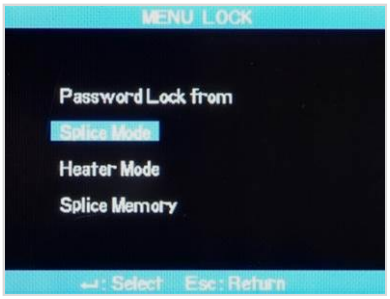
② Select password and press ENTER key. Create a password by moving the cursor and press finish key to set or cancel the menu lock. If you select password locked, following items cannot be modified.



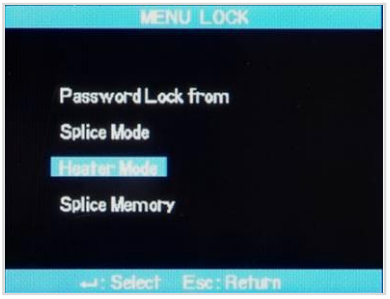
Initial password is as 0000 in the factory.

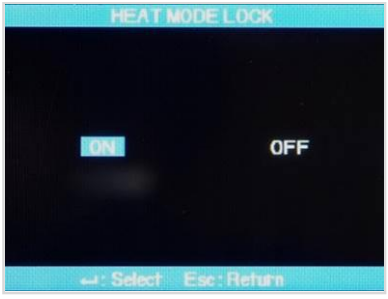
① Select Splice Mode and press ENTER key. Then you will be able to set or cancel menu lock in the menu appeared.

If you choose Yes, whenever you are trying to modify parameters or settings of splice mode, "Password Locked" is displayed. The modification cannot be completed.

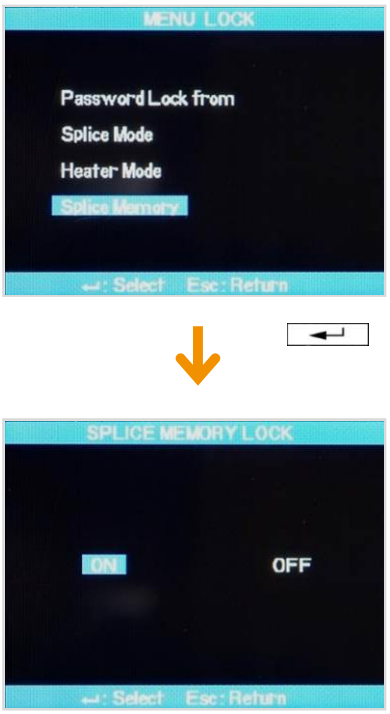


② If you choose Heater Mode, the menu lock for heater mode can be set. If you choose Yes, no change in heater mode settings can be made.





① If you choose Splice Memory and Yes, deleting splice results cannot be made.



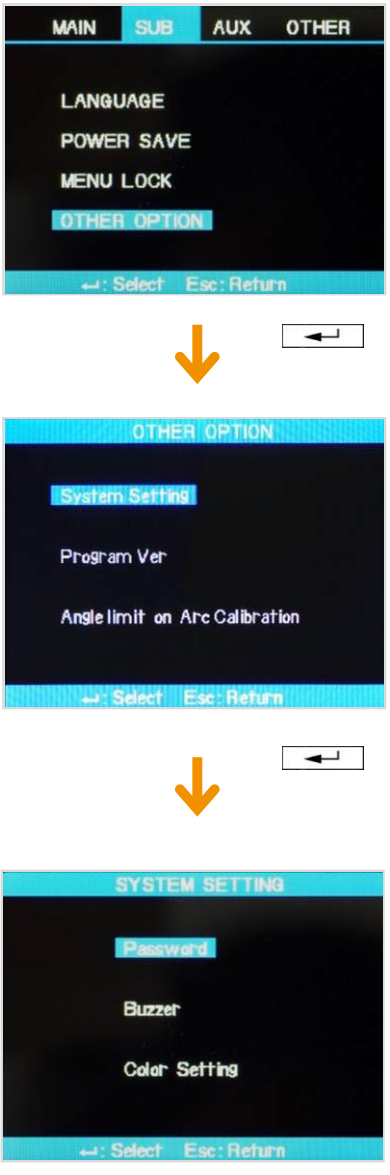
Even if password locked is set to Yes, unless the lock of each mode is set Yes, modification of each mode is not locked.

7.4 Other Option

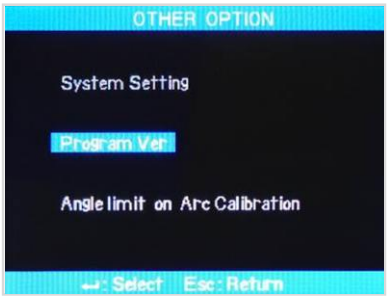
In other option in sub menu, additional functions can be set.

① Password change and buzzer sound change, theme change can be made in System Setting.

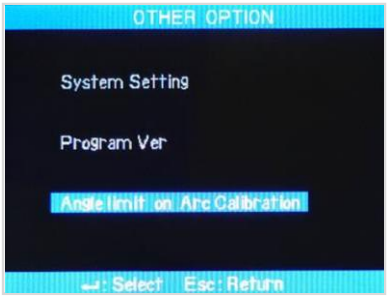
Do not forget the password you've created, if you forget it, the equipment should be sent to the factory to initialize the password.



② Program version shows the current version of operation program.



③ Anglelimit on Arc-discharge calibration, you can set limitations on angle upon calibration of discharged amount.



VIII. Auxiliary menu

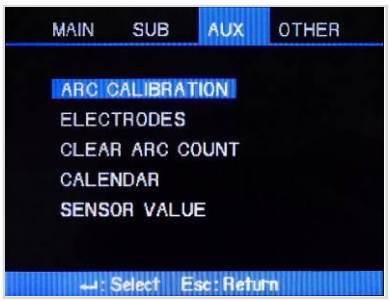
8.1 Calibration of Arc-discharge

Arc-discharge current needs to be calibrated in accordance with the changes in temperature, humidity and air pressure of surrounding area. Temperature, humidity and air pressure sensors are useful in calibrating arc-discharge depending on external conditions.
The changes of arc-discharge current caused by the wear of electrodes and fiber splicing operation are not calibrated automatically.
In addition, the central axis could be moved to either right or left side. Such case will affect the splice position of fiber, hence calibration is required.

[Arc-discharge Calibration] is a function to adjust the "properties" value of arc-discharge current. The element value is used in the operation program for splicing. In addition, calibrated value of arc-discharge current cannot be changed in splice mode.

Calibration procedure

① Select [Stabilize Electrodes] in [Splice Menu] to display calibration screen.



② Place cleaved fibers into the arc fusion splicer.

- Use a clean fiber because dust on the fiber surface may affect calibration result.

③ Press ENTER key

Arc-discharge is carried out after aligning the fiber. The arc-discharge current can be adjusted in accordance with arc-discharge status.

Initial cleave angle is not related to the parameter "cleave loss" in splice mode. The initial cleave angle can be set independently for the purpose of controlling arc-discharge current.

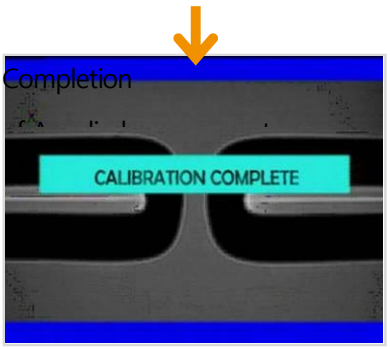
④ When measuring is done, following result is displayed on the screen.

"Calibration complete" message

Means arc-discharge current calibration and setting splice position has been successfully completed. Press ESC key to close the function.

"Test Again" Message

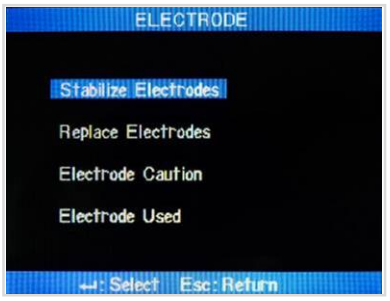
Means calibration and position setting have been done but arc-discharge needs to be carried out again because huge difference occurs after calibration. Prepare a new fiber and re-conduct wind cover after pressing **r** key. Even if the calibration is not completed, it could be cancelled by pressing ESC key.

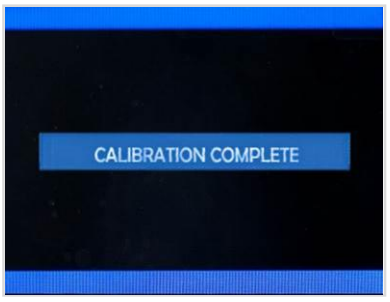


In general, many times of re-arc-discharge are required to get a successful result or "CALIBRATION COMPLETE" message. When there is no message of completion even after several discharges, you can presume it is completed.

8.2 Electrode

8.2.1 Electrode Stabilization





Sometimes, splice loss rate grows due to unstable arc-discharge current caused by surrounding environmental factors. Users need to understand that it takes quite a time for the arc fusion splicer to generate stabilized arc-discharge when it is used in high or low position. So it is necessary to continue adjust arc-discharge current until it is stabilized. When measurement is completed, "CALIBRATION COMPLETED" message appears; it means [Arc-discharge Calibration] has been successfully completed.

Process

① Select [Stabilize Electrode].

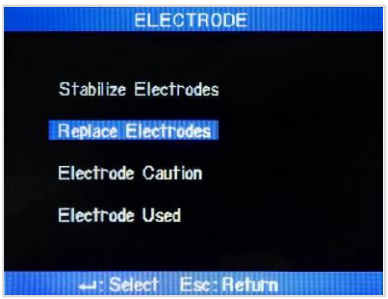
② Remove the fiber optic connector in the fusion splicer.

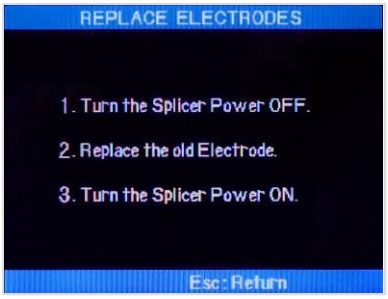
③ Press ENTER key to activate electrode stabilization process.

④ Stabilization is completed when entire process of [Arc-discharge calibration] is done.

8.2.2 Electrode Replacement

The equipment needs to be cleaned in a regular manner as electrodes are being worn off and silica oxide particles are deposited continuously. It is recommended to set the replacement period to 3,000 times of discharge.
When the discharge count exceeds 3,000 times, a message to request for the replacement of electrodes appears. In that case, turn off the power and replace them. Continuous use of the machine without replacing electrodes will increase splice loss rate and affect the quality of spliced point.





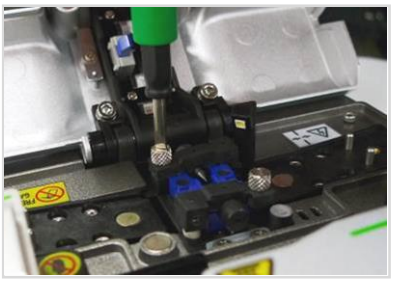
Replacement procedure

① Turn off the power.

② Loosen the cover handle of electrode.

③ Carefully take out electrodes.

④ Clean carefully new electrodes with a cotton swab wet in alcohol and mount them to the splicer.



(i) Correctly place an electrode into the V-groove of electrode base.

(ii) Fix electrode cover by tightening screws.

- Be careful not to damage the electrodes while replacing them.
- Turn the handle while pressing electrode cover at a correct position.

⑤ Turn on the power and set a fiber. Press Enter. After carrying out the calibration of arc-discharge current, repeat arc-discharge about 4 times to stabilize the new electrodes.

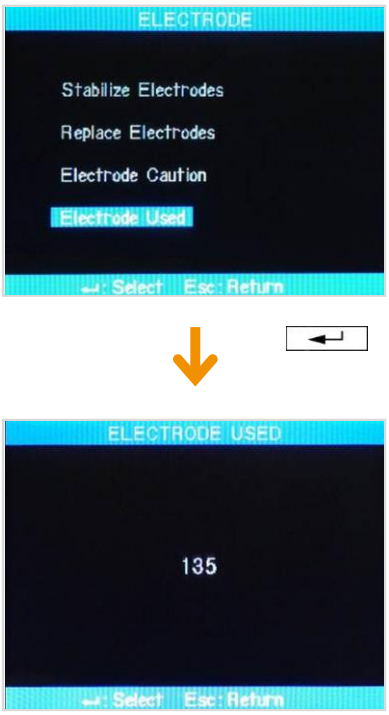
⑥ Repeat arc-discharge calibration after completing a discharge until "CALIBRATION COMPLETE" appears.

8.2.3 Electrode Caution

User can check the replacement timing through Electrode Menu

8.2.4 Electrode Used

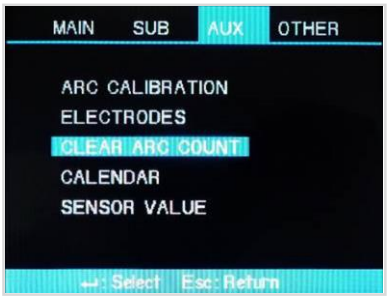
User can check the current usage count through Electrode Menu



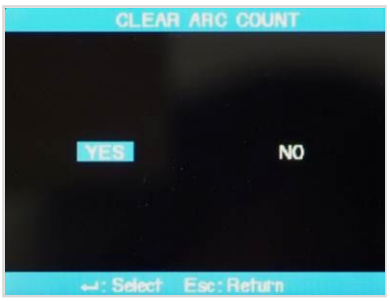
8.3 Clearing Arc-discharge Count

Users can clear the record of arc-discharge count.

① Select [Clear Arc Count].



② Select Yes and press ENTER key to delete the record.

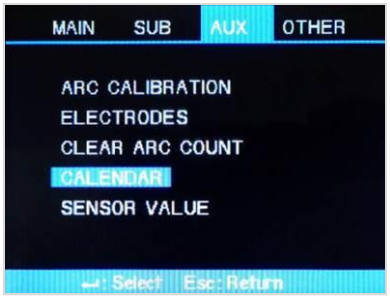


This is a function required to be done after replacing electrodes.

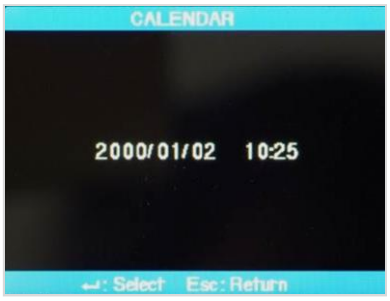
8.4 Date and Time Setting

Users can set the date and time when data is saved in the equipment.

① Select [Calendar].

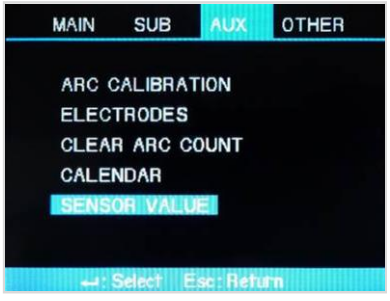


② The current date and time are displayed.



8.5 Sensor Value

Various sensors are used in the equipment to display current temperature, air pressure and battery voltage.



IX. Menu Management

9.1 Pop-up Menu Setting

Splice mode and heater mode, which are frequently used, can be registered as a pop-up menu so that mode change to those functions can be done promptly by pressing up or down key.

Press ▽ or △ key

➔

. You can save up to 10 pop up menus. No. 1~3 are configured at the factory. Still the user can change it op-up

Replacement

① Splice mode registration.

Press ENTER Key → Select Splice Mode → Move to the mode to register → Press Key → Pop-up menu registration box appears → select necessary number using up and down keys → Press ENTER Key → Registration completed

② Heater mode registration

Press ENTER Key → Select Heater Mode →  Press Key → Pop-up menu registration box appears → select necessary number using up and down keys → Press ENTER Key → Registration completed

9.2 Setting Automatic Heater

It is a convenient function when continuously splice works have to be carried out. When wind cover is opened after completing a splice operation, heater is activated for a set time period.

Press ENTER Key → Main Menu → Select splice sub menu → Basic → Set or cancel by selecting ON or OFF in auto heat.

9.3 Setting or Cancelling Error

Users can either set or cancel errors that are not affecting splicing operation.
Press ENTER Key → Main Menu → Select Splice Sub Menu → Ignore Splice Error → Select ON or OFF for each item

X.Error Message

10.1 FIBER DIRTY

An error message that indicates that there are foreign substances on the prepared optical fibers more than normal limit.

➔ Clean the fibers and set again.

.

10.2 ALIGNMENT ERROR

An error message appears when the fibers are not placed in the middle of electrodes and V-groove or object lenses or prism is stained.

➔ Press Reset button and correctly re-place the fibers in the middle of electrodes and V-groove.

➔ Check and clean the condition of lenses and prism

10.3 FIBER TOO LONG

It appears when fibers are placed too close to electrodes or LED light is not bright enough due to stains on the lenses or prism.

➔ Press Reset button and correctly re-place the fibers.
➔ Clean the condition of lenses and prism
➔ Conduct LED examination, if there is an error, contact ILSINTECH Co., Ltd.

10.4 FIBER OVER ANGLE

It appears when the measured value of fiber cleave angle

➔ Check the condition of fiber cleaver and reset the fiber.
➔ Check the limit of cleave angle.

10.5 LOSS LIMIT OVER

It appears when the estimated loss value is bigger than loss limit.

➔ Check the loss limit setting.

10.6 FIBER THIN

It appears when the spliced part is thinner than reference value after conducting splice.

➔ Reduce the length to pull in the pulling splice menu.
➔ Check whether arc-discharge is too strong or discharge time is too long.

10.7 FIBER THICK

It appears when the spliced part is too thick after conducting splice.

➔ Reduce the overlapping setting value.
➔ Check whether arc-discharge is too weak or discharge time is too short.

10.8 Bubbles

It appears when bubbles or dots are generated on the spliced part after splicing.

➔ Check fiber cleaver.
➔ Clean V-Groove.
➔ Check electrodes.

XI. Splicing problem solving

11.1 When loss is high

☐ Any dust or foreign substance on the fiber surface may incur poor splice.

- Clean the fiber surface sufficiently.
- Do not clean the fiber after cleaving to prevent dust from being gathered on the fiber cross section.
- Do not push in the fiber when putting it on V-Groove.
  The fiber should be placed from the top to bottom.

☐ Any foreign substance on V-Groove hinders the correct alignment.

- Keep the V-Groove clean at all times.

☐ Electrodes bad condition

- When an electrodes contains an abrasion or its tip is bent and dirty, replace the electrodes.

☐ Arc amount and arc time are inappropriate.

- Check the setting of arc amount and arc time to reset them with proper values.
- Without any great change, the initially set values are the most appropriate ones.

☐ Inappropriate splice mode

- Check whether appropriate splice mode is selected for the fiber.

11.2 Abnormal splicing operation

- ☐ Alignment operation is repeated.
  - Open the wind cover again and then close.
  - If discontinues, open the wind cover, press 

and then turn off the power. Then contact Ilsintech.

- ☐ The error message “Too Long Fiber” is continuously generated.
  - Turn off the power and contact Ilsintech.

XII. Other Menu

12.1 Self-Diagnosis Test

The operational status of the functions of SWIFT KF2A can be tested by a simple self-diagnosis test.

Procedure

① Place a fiber into the SWIFT KF2A and select [Self Diagnosis] in the menu. Check following matters

	Item	Description
1	LED test	Check the brightness of LED.
2	Motor test	Check the operational condition of each motor.

② The result of the test is displayed on the screen. Moter test and LED test are located in [Other Menu].

12.2 Dust Test

Users can observe the fiber through visual processing. Dust or stains on the camera lenses or wind cover prism could cause a wrong splice result by hindering normal observation of the fiber.
This function judges whether contaminants' state reaches a degree to cause problems in splicing.

Procedure

① Select [Dust Test] in [Other].

② Remove any fibers placed in the splicer and press ENTER key to start the test.

③ After test, if "ERROR" message appears, clean wind cover prism and lenses. Conduct [Dust Test] again. Refer to "Splice quality maintenance" page for the way to clean them.

④ Press Esc key to stop dust test.

If the user cannot remove dust on the wind cover prism or lenses after cleaning them, contact ILSINTECH Co., Ltd.

12.3 Motor Operation

Two motors in the equipment can be running separately and manually. In addition, motors, which are in [Pause 1] and [Pause 2], can be activated by opening this menu during splicing operation.

① Select [Run Motor]

② Select different motor using ▽ or △button. The name of the selected motor is displayed at the top of the screen.

③ Run the selected motor to a required direction using ▽ or △button.

Motor	◁	▷
ZL/ZR	Backward movement	Forward movement

12.4 LED Test

The arc fusion splicer observes fibers after processing the image visually. Dusts or dirt on the camera, lenses or wind cover mirror may interrupt normal observation of fibers, causing a wrong splice result. This function checks the optic fiber path if it is contaminated so it can result in a splice problem.

Procedure

① Select [Led Test] in [Other]

② Remove any fibers placed in the splicer and press ENTER key to start the test.

③ After test, if “ERROR” message appears, contact ILSINTECH Co., Ltd.

④ Press “Esc” to end dust test.

12.5 Maintenance Information

When [Maintenance Information] is selected, below information appears.

Parameter	Description
Production Date	Shows the year, month and date when the equipment was produced.
Arc-discharge Count	The number of discharges done after replacing electrodes. It can be initialized to '0' by executing [Clear Arc Count].
Total Arc-discharge Count	Shows the total arc-discharge count of the equipment.
Last Maintenance Date	Shows the most previous maintenance date.
Next Maintenance Date	Shows the next maintenance schedule.

XIII. Problem occurrence and question

13.1 Power Supply

① Cannot turn off the power by pressing the power button.

➔ Press the switch and hold it about 1 second before releasing.

② Unable to carry out many splicing works with fully charged battery packs.

➔ If the user is not using power saving function, the power consumption is huge. Refer to [Power Save] for more information. If a battery pack has been kept for a long period without being used, charge the battery fully before utilizing it.

A battery pack has its operation life, replace old batteries with new ones. Since the battery packs are operated based on chemical reactions, the electric energy of the battery decrease and dramatically drops, in particular, at below zero temperatures. Also, the electric consumption for splicing increase in high altitude, hence the use time of a battery pack drops in such occasion.

③ While a battery is being charged, "Red" LED on the AC charger blinks

➔ Disconnect AC power code and connect it again in 10 to 15 seconds.

This incident could happen when a battery is charged when air temperature is too high or under direct sunlight. Another case is that the battery pack is damaged or its service life has been over. If LED is still blinking when charging a new battery pack, contact ILSINTECH Co., Ltd.

④ LED of charger is not turned on.

➔ Disconnect AC power code and connect DC code to the charging jack for 10 to 15 seconds. And connect AC power code again.

⑤ Remaining battery capacity is not displayed.

➔ Charge battery packs

Place battery packs into the battery charger and connect AC adaptor. Connect AC adaptor exclusive for charging to the SWIFT F1+ charger, install the removed battery and charge.

⑥ Remaining battery is not displayed properly.

➔ Use the indicator only as a reference. When battery display does not accurately operate, operation time may differ.

13.2 Splice

① An error message appears on the screen.

➔ Refer to [Error Message List].

② Irregular / high splice loss rate.

➔ Clean V-groove, fiber holder, prism, object lenses in accordance with [Splice Quality Maintenance]. Refer to "estimated high loss" in the [Error Message List].
If the fiber is bent or twisted, place the bent part upward. Cleave angle, arc-discharge conditions and cleanness of fiber affect the loss rate. If the loss rate still is high after conducting above measures, contact ILSINTECH Co., Ltd. An annual maintenance and repair are required for marinating good splice quality.

③ Verification of splice procedure

➔ Refer to [Splice Procedure].

④ Monitor is suddenly turned off.

➔ Press Menu key and check power saving settings.

⑤ The equipment is suddenly turned off.

➔ Turn on the equipment and check power saving settings.

⑥ How to change the error limit values of cleave angle, splice loss and fiber angle?

➔ Refer to [Splice Mode Edit].

⑦ Error message can be ignored.

➔ Refer to [Splice Other Option].

⑧ Cannot adjust arc-discharge current and time.

➔ On saved modes such as SM, NZ and MM, Arc amount and Arc time cannot be changed. Other than the 9 saved splicing modes, changes can be made on newly created modes.

⑨ How to set pause?

➔ Refer to [Splice Other Option].

⑩ How to display cleave angle, fiber angle and core/clad deviation?

➔ Refer to [Splice Other Option].

⑪ Difference between estimated splice loss and measured splice loss.

➔ Use estimated splice loss only as a reference purpose because it is a calculated result. OTDR loss and splicing loss may differ.

⑫ ON/OFF discharge should be applied for re-discharge in case of using a special mode.

➔ Set [Arc-discharge 2 ON Time] to 500 and [Arc-discharge 2 OFF Time] to OFF. Refer to [Splice Mode Edit]

13.3 Tube Heater Operation

① Fiber protection sleeve is not fully contracted.

➔ Increase heating time. Refer to [Heater Mode Edit].

② Heater is overheated.

➔ Stop the operation of the heater by pressing heater key and turn off the power.

Contact the manufacturer.

③ Fiber protection sleeve is stuck to the heating plate after being contracted.

➔ Use a cotton swab or similar matter to push or remove the sleeve.

④ How to initialize heating conditions of heater mode?

➔ Refer to [Heater Mode Edit].

⑤ How to cancel heating process?

➔ Press Heat key times to cancel heating. It cannot be cancelled by pressing Reset key.

13.4 Management

① How to prevent modifying function list?

➔ Refer to [Menu Lock].

② Howe to lock the “Splice”, “Edit” or “heater mode”?

➔ Refer to [Menu Lock].

③ Password is lost.

➔ Contact ILSINTECH Co., Ltd.

13.5 Other Settings

① [Arc-discharge calibration] is repeated many times until "Test Completion" is displayed.

➔ More calibration is required when surrounding environment is radically changed or after electrodes are replaced.

② "Test Completion" is not displayed even though the calibration has been repeated many times.

➔ Activate [Stabilize Electrode] in [Maintenance Menu]. If it doesn't work, replace electrodes according to [Electrode Replacement] function.

③ No change in arc-discharge current after calibration

➔ Arc-discharge changes internal elements. The arc-discharge amount displayed in each splice mode is not changed.
Calibration result affects entire splice modes.

XIV.PC Program Installation

14.1 Installation Procedure

① Move the provided driver onto PC and save it.

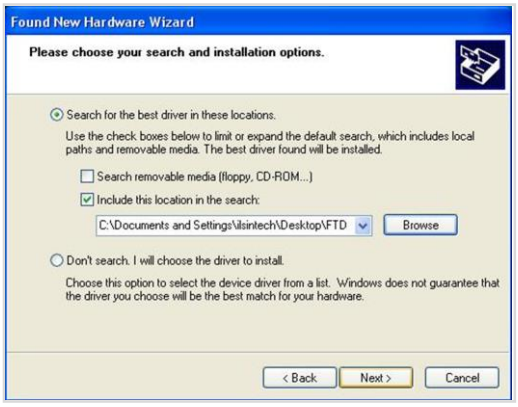
② Connect the equipment to PC with a USB cable.

③ New hardware is found and USB Serial Port Driver is installed.

④ Hardware update wizard is activated. Select "Yes, now and every time…" and click Next.

⑤ Select "Install from a list or …" and click Next.

⑥ Select “Search for the best…” and “Include this location…”as shown below and click Browse to find the location when FTDRIVER is saved.



⑦ When clicked Next below screen appears.

⑧ Click Finish .

⑨ When the installation of USB Serial Converter Driver is completed, Hardware update wizard is activated again.

⑩ Select “Search for the best…” and “Include this location…”as shown below and click Browse to find the location when FTDRIVER is saved.

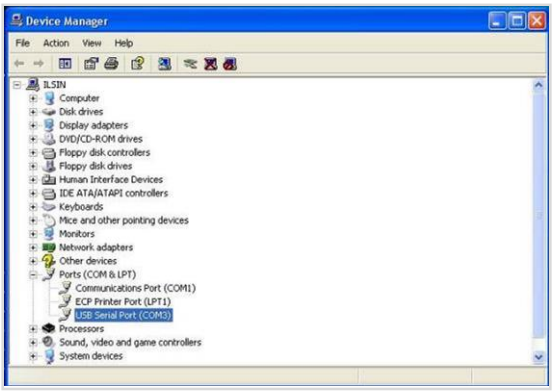
⑪ When clicked Next below screen appears.

⑫ Click Finish to complete the installation of USB Serial Port.

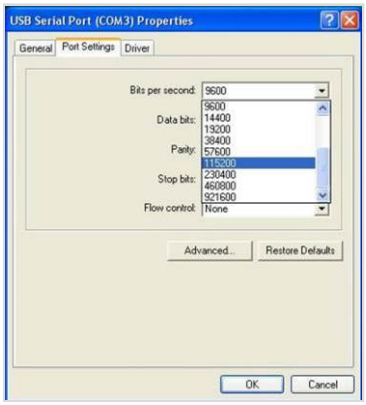
⑬ Select My PC and click mouse right button and select Properties.

⑭ Select [Hardware] tap and click [Device Manager].

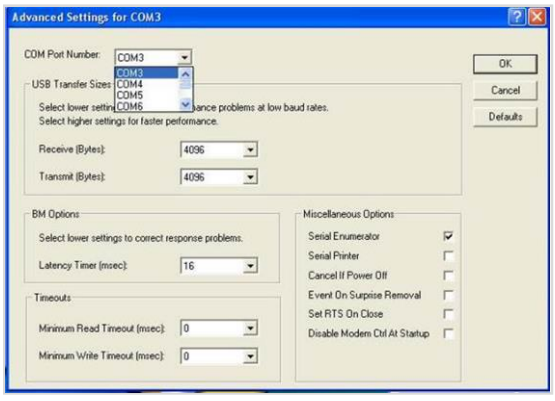
⑮ Click [Fort (COM & LPT)] and select “USB Serial Port”.



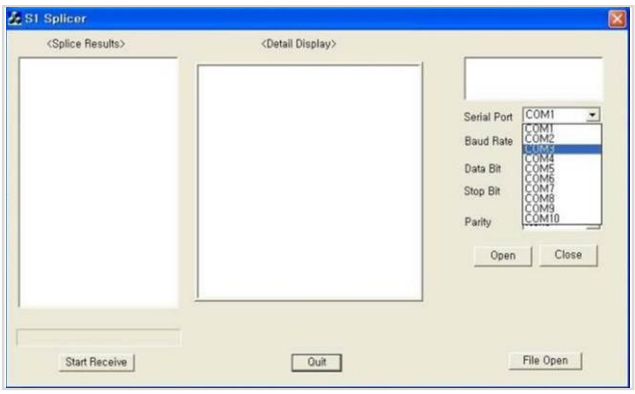
⑯ In the “USB Serial Port Properties” window, set the speed of Bits per second to 115200.



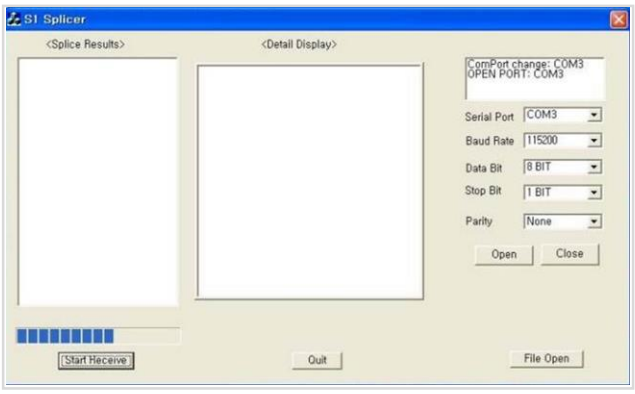
⑰ In “Advanced Setting for COMx” window, click “COM Port Number” and select the port to be used in COM3 ~ COM10 Port. Click Ok and confirm the selection.



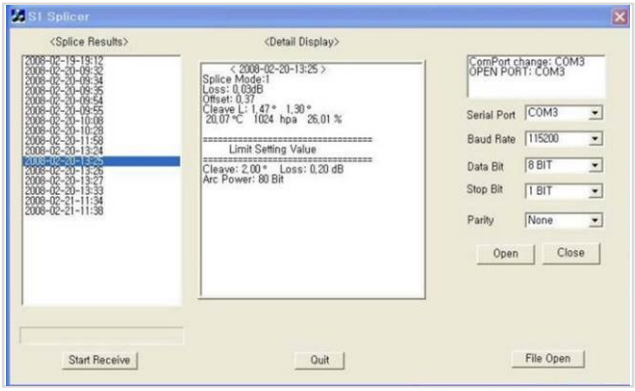
⑱ Activate SWIFT KF2A Splicer program and select COMx Port as the serial port, which has been decided in device manager setting.



⑲ Click "Open" and activate Start Receive. Following screen appears.



⑳ When splice data of the equipment is transmitted to PC, data is displayed in <Splice Results> window in chronological order. Detailed data can be shown in <Detail Display> window when an item is clicked. Splice results are recorded as KF2A.txt in the folder where SWIFT KF2A Splicer program is installed or on the desktop.



XV. Warranty and Repair

15.1 Warranty Period and Limit of Responsibility

If an Arc fusion splicer is broken within one year from delivery, it will be repaired by the manufacturer for free. However, the buyer will be charged for the repair regardless of the warranty period if the breakage or damage incurred due to.

① natural disaster,

② application of abnormal high frequency voltage,

③ negligent handling,

④ handling or maintenance not meeting the operational procedures or instructions presented in service manual and

⑤ seal sign being already damaged.

15.2 Before sending the equipment

Please contact ILSINTECH Co., Ltd first.

15.3 For more effective maintenance and repair of the equipment,

① buyers should include a note which contains
(Name, department, company, address, telephone no, Fax no, e-mail address)

② arc fusion splicer's serial no and

③ error messages appeared when an incident or breakage occurred. Possibly with a brief explanation of the symptoms or reasons for repair including the condition and time of incident, current condition and monitor condition, etc.

15.4 Transport of the equipment

Since this arc fusion splicer is high-precision equipment, it is required to protect it from moisture, shake or physical impact by transporting it after keeping in an exclusive carrier case. When requesting for repair service, please, make sure that the body with components is sent in an exclusive carrier case.

15.5 Repair

Contents saved such as splicing results or splicing modes may be deleted according to condition of repair work.

Product Warranty

Product name		SWIFT KF2A		
Manufacture no.				
Date of purchase				
Customer	Name		TELEPHONE	
	Address			

Warranty

1. This product is manufactured through strict quality management and inspection.
2. This product guaranteed for one year over defective parts from its date of purchase.
3. Present this product warranty card when repair is required for the product.
4. As this product is a high-precision device, please carry it in the carry case at all times to protect it from humidity, vibration and shock.

Charged service

In the following cases, a service fee (repair, component and travel expenses) is charged even under warranty.

1. Breakdown or damage due to natural disasters
2. Breakdown or damage due to abnormal voltage supply
3. Breakdown or damage due to user's careless handling
4. Breakdown or damage due to product handling with disregard to the working procedure or directions written on instructions for use
5. When the seal is damaged

❖ When maintenance is required, contact Ilsinthe or local sales representatives