

## **DTF-03 6 Motor Fusion Splicer**

# **Instruction Manual**



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# 1: Safety Information and Instructions

When using the optical fiber fusion splicer (hereinafter referred to as the "fusion splicer"), it is essential to follow the general safety measures outlined below. The company assumes no responsibility for any consequences resulting from the user's violation of design, manufacturing, or usage safety standards.

Before connecting the power supply, ensure that the voltage meets the specified requirements and that all necessary safety precautions are in place.

Only use the original power adapter provided by the company. The adapter's output specifications must meet the following requirements: voltage: 10V–13.5V; current:  $\leq 6A$ . Exceeding the specified voltage may damage the device. The input AC voltage for the power adapter must be within the range of 100–240V, 50/60Hz. Input voltage outside this range may cause permanent damage to the adapter.

The fusion splicer is designed exclusively for welding quartz glass fibers and should not be used for any other purpose. As a precision instrument, it must be handled with care. When transporting or using the device, adhere strictly to the guidelines provided in this manual. The company will not be held responsible for any consequences resulting from the user's failure to follow these instructions.

- Do not operate the fusion splicer in an explosive atmosphere or in the presence of flammable gases or fumes.
- Avoid using compressed or canned gas cleaners to clean the fusion splicer, as the welding arc may ignite residual combustible materials.
- Never touch the electrodes while the machine is operating, as this may cause personal injury. Ensure the fusion splicer is powered off and unplugged before replacing the electrodes.
- Always wear safety goggles during fiber preparation and splicing to prevent injury. Fiber debris can be hazardous if it comes into contact with the eyes, skin, or if ingested.
- Do not disassemble or install any part of the fusion splicer without proper authorization. Only authorized personnel or agencies are permitted to perform such actions.
- If liquid or foreign objects enter the machine, or if you notice smoke, odors, unusual noises, or damage from a fall, immediately power off the machine and disconnect it from the AC power source.
- Do not handle the fusion splicer, AC power cord, or AC plugs with wet hands.
- Use only the original charger or adapter provided by the manufacturer. Chargers from other manufacturers may overcharge or damage the battery.
- Do not place heavy objects on the power cord during charging, nor should you heat or modify the cord, as this could result in fire, personal injury, or death.
- Avoid cleaning the fusion splicer with corrosive substances such as acetone or paint thinner, as these can damage the machine.
- When the fusion splicer is not in use, store it in a clean, dry environment. During handling and transport, always place the machine in its original toolbox to prevent damage or contamination.
- Do not store or use the battery in a moist environment, as moisture can cause a short circuit and damage the battery.



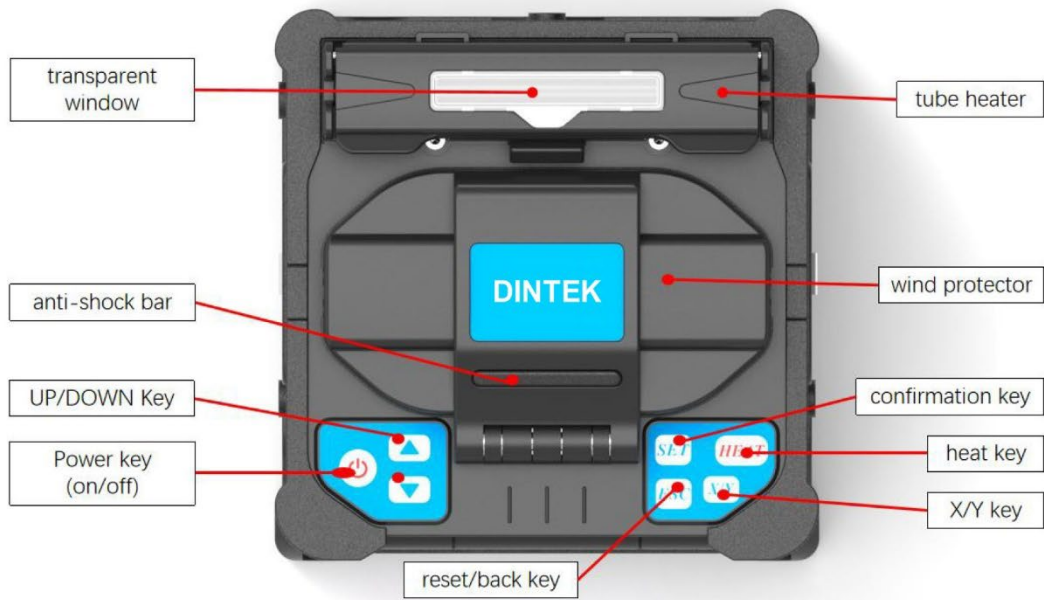
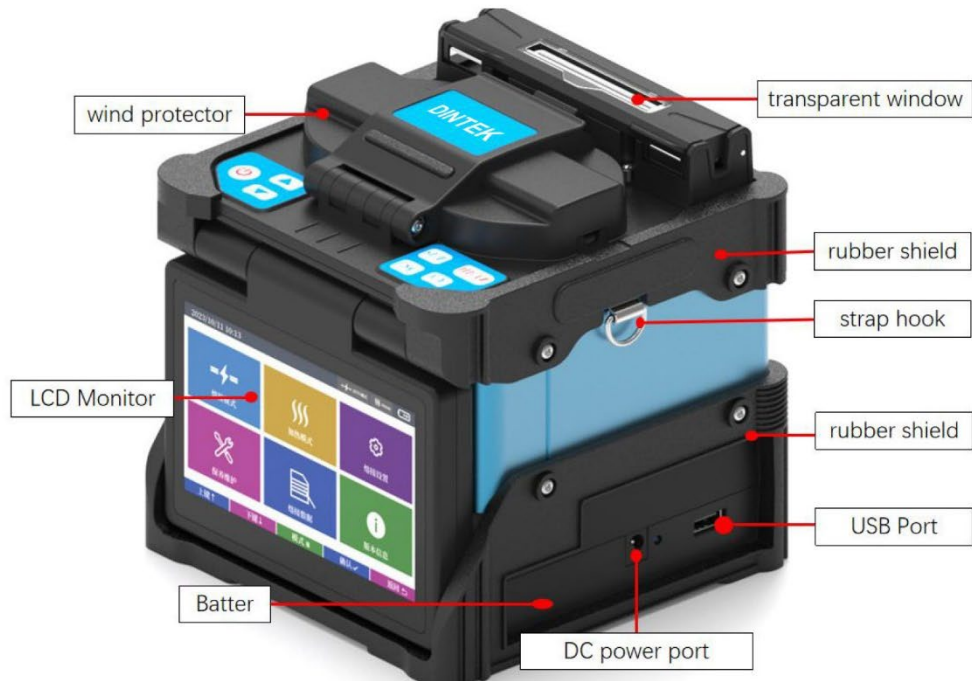
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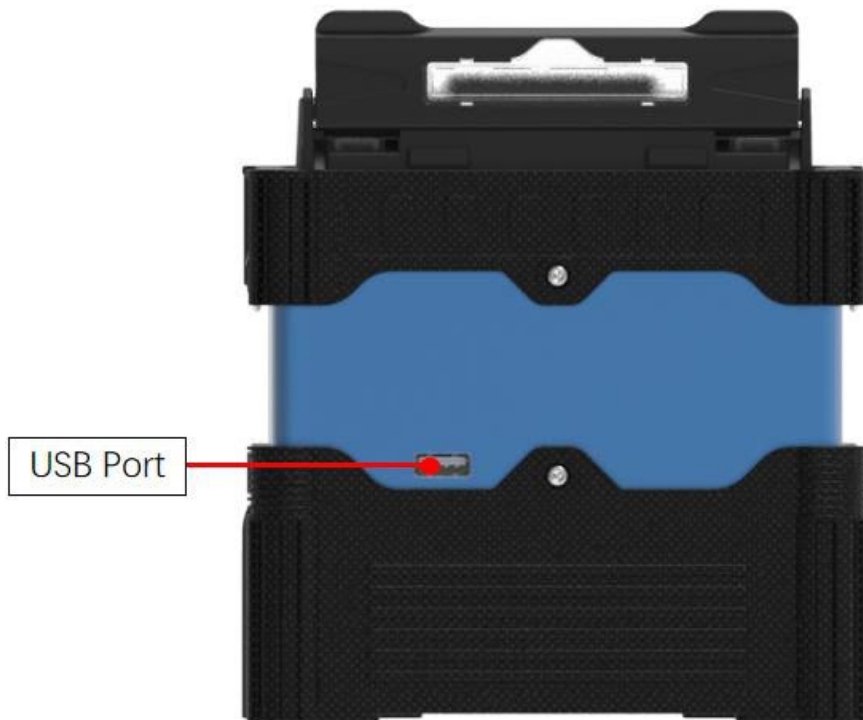
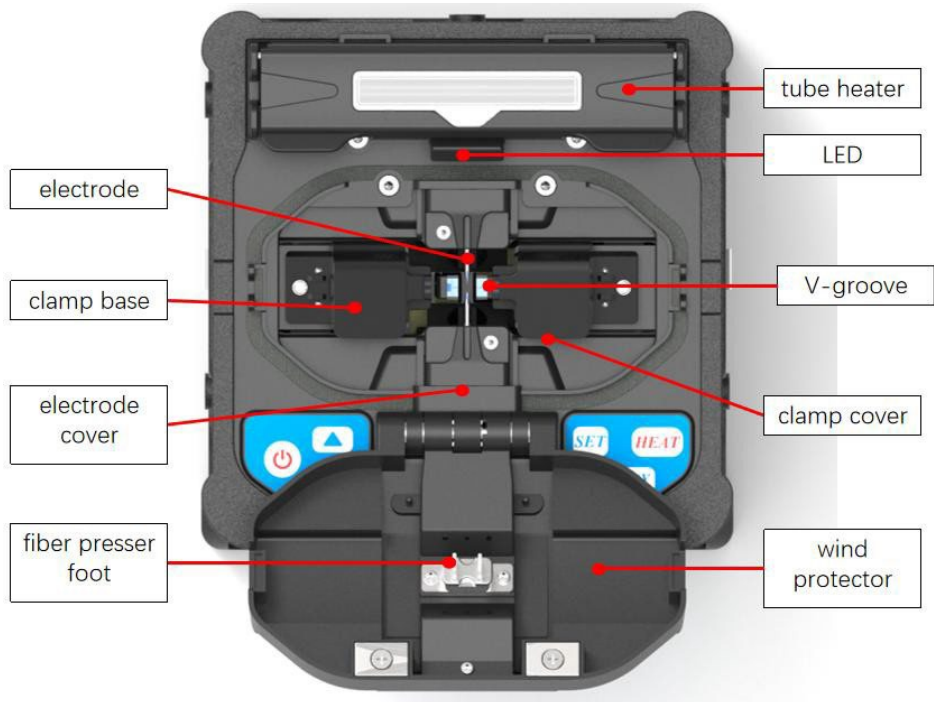
The machine uses a specialized lithium-ion battery. Using non-approved batteries may damage the fusion splicer and pose a risk to personal safety. Please follow these battery precautions:

1. Do not strike the battery with sharp objects.
2. Avoid transporting or storing batteries alongside metal items.
3. Do not throw, drop, impact, bend, hammer, or step on the battery.
4. Prevent short circuits by ensuring the battery's positive and negative terminals do not come into contact with metal objects.
5. Never attempt to disassemble the battery pack under any circumstances.
6. Do not immerse the battery in water.
7. Avoid using or placing the battery near heat sources.
8. Do not weld the battery directly.
9. Do not use damaged batteries. Batteries showing signs of electrolyte leakage or emitting a strong electrolyte odor should be kept away from fire or heat sources to prevent potential fire or explosion.



## 2: Overview Splicer and Keyboard Introduction





### 3: Technical Parameter

Model	DTF-03 Fusion Splicer
CUP	Industrial grade dual CPU with 4 cores
Fiber Alignment	Core alignment/auto-focus
Applicable Fibers	SM (G.652), MM (G.651), DS(G.653), NZDS(G.655),BIF/UBIF(G.657)
Fiber Diameter	Cladding diameter:80~150um/Coating diameter:100um~3mm
Fiber Cleave Length	5-16mm
Align Mode	Auto focus
Splicing Mode	Manual/Auto
Welding/Heating mode	Preset a variety of welding mode and heating mode, can be customized
Average Splicing Loss	0.02dB (SM),0.04dB (MM),0.04dB (DSF),0.04dB(NZDSF)
Splicing Time	6S
Heating Time	15S
Storage	10000groups
Image Magnification	380times
Screen	5-inch digital high-quality touch LCD screen
Lighting	Built-in high beam lighting
Power Supply	Input AC100~240V(50-60Hz), output DC10~13.5V
External Interface	DC adapter, USB interface
Tensile Testing	1.96~2.25N
Shrinkable Sleeve	10mm~60mm
Battery Life	300cycles splicing and heating
Electrode lifetime	5000counts
Communication Interface	U-disk automatic software upgrade, Melding data export
Operating Condition	Altitude:0~5000m, Wind speed:15m/s, Temperature: -10~+50℃, Humidity:0~95%RH
Resistance	Dust/Shock/Water
Weight (including battery)	2 KG (including battery)
Storage Condition	Humidity:0-95%RH, Temperature: -20~50℃, Battery Storage: -20-30℃
Dimension (LxWxH)	144mm(L)×142mm(W)×151mm(H)



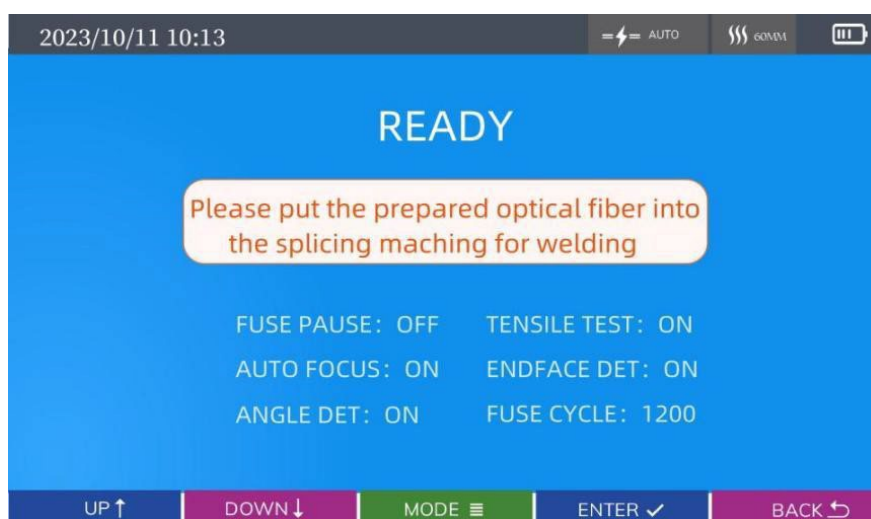
# 4: Splicer Interface and Function

## 1. Boot Interface

Press the power button for 3 seconds, the machine will automatically turn on and enter the boot screen.

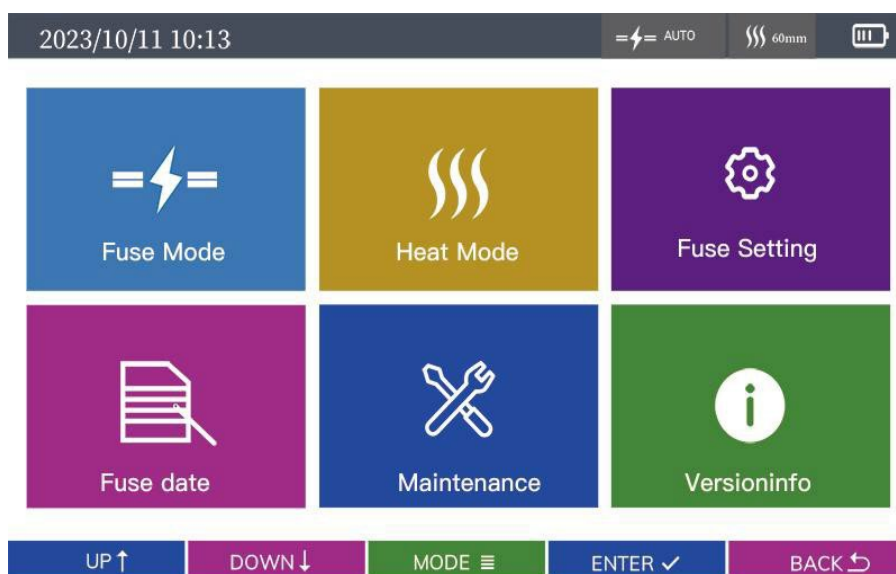
## 2. Standby Interface

The standby interface shows some brief setting information of the machine, which will help you enter the work more quickly.



## 3. Main Page

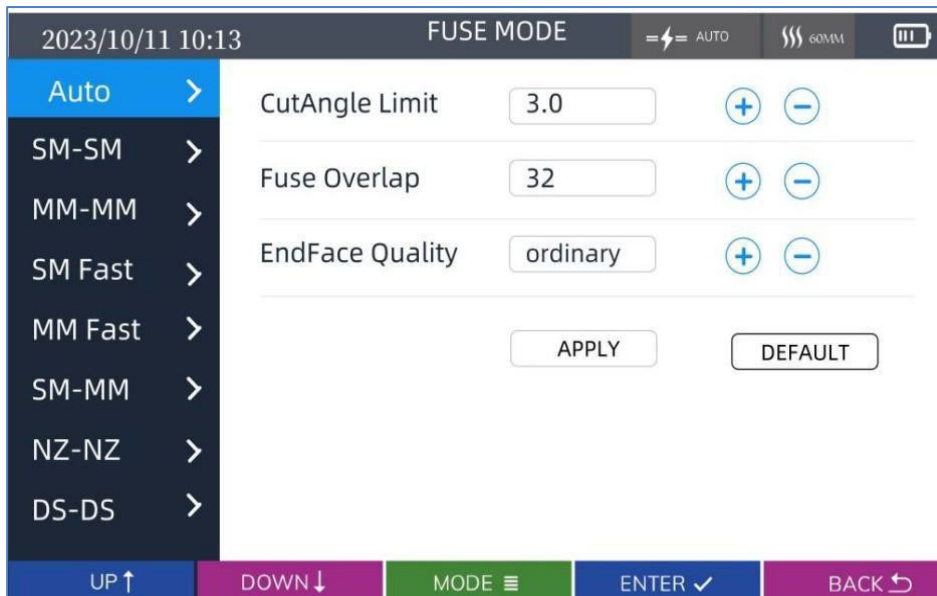
By up/down key, press enter key to enter related settings.



◆ Splicing Mode



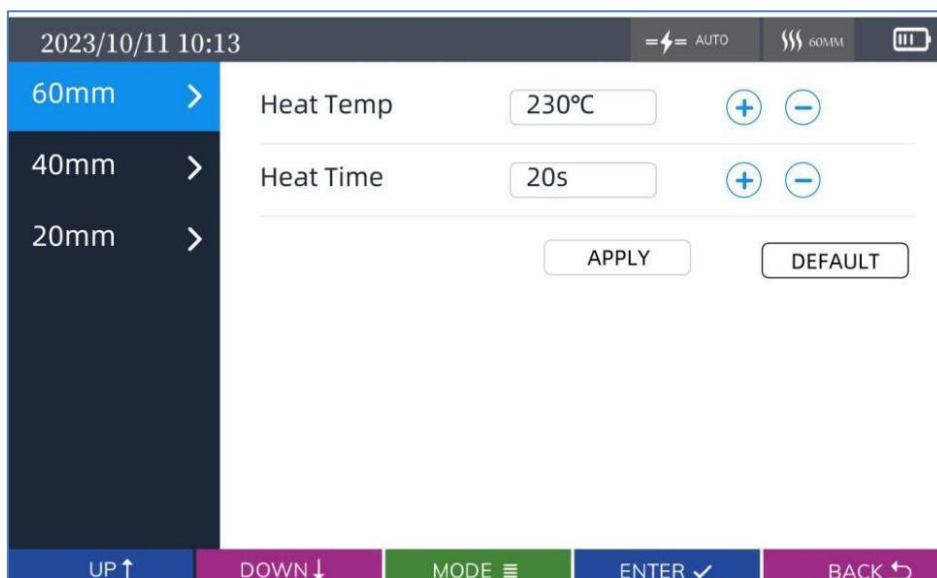




- ① Selecting the appropriate splicing mode helps to get lower splice loss.
- ② According to different situation, the relevant parameters can be adjusted.

◆ Heating mode

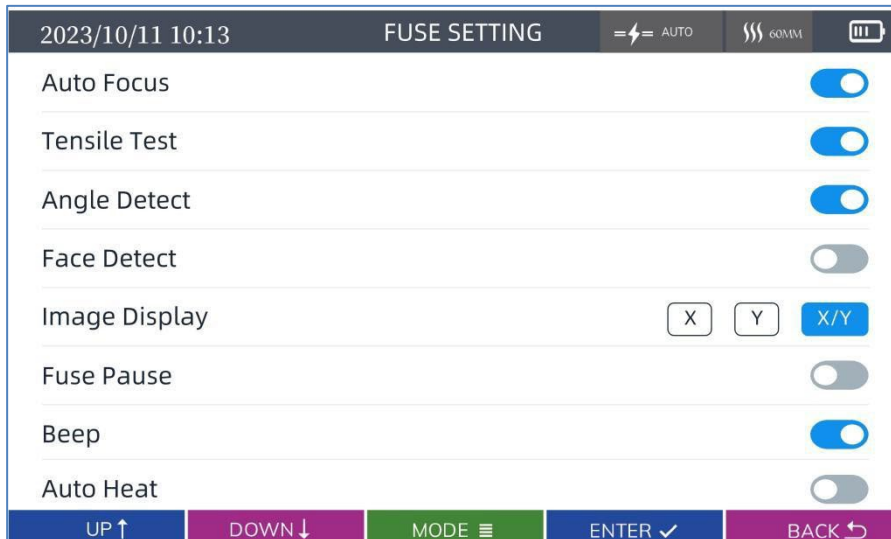
- ① Select the appropriate heating mode according to the specification of the heat shrinking tube used
- ② According to the actual use, modify the heating time.



◆ Splicing Setting

- ① Change the relevant machine settings according to the actual usage and personal usage habits.

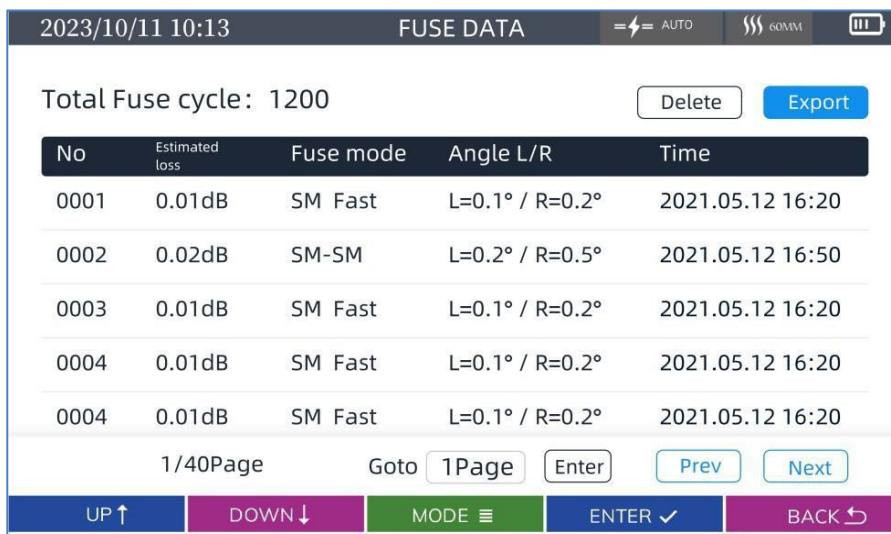




◆ Splicing Data

- ① Check the machine splicing times (not including cleaning discharging)
- ② Check the machine splicing data
- ③ Delete the relevant splicing data
- ④ Export the splicing data

Note: when export the data, please use U-Disk in FAT or FAT32 format.



◆ Auto Calibration

- ① When first time to use the machine, or replacing the electrode, or when the welding loss is not as good as expected, please perform discharge correction.
- ② When the machine breaks down, please enter the self-test.
- ③ The optical fiber is abnormally advanced, and the core adjustment is slow. Please enter the motor calibration to achieve the best fusion status.
- ④ According to personal needs, you can enter the manual welding mode.
- ⑤ Under the instruction of the authorized agency, please enter the Menu page to set the relevant parameters.

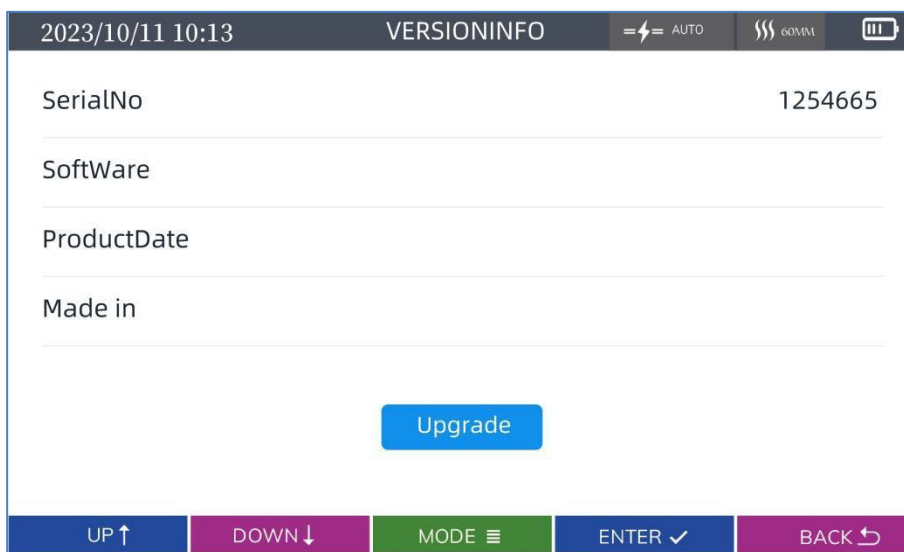




◆ Version Information

- ① Query the machine's serial number, software version, date of manufacture, place of origin and other information
- ② With -disk, can upgrade the machine to the latest version.

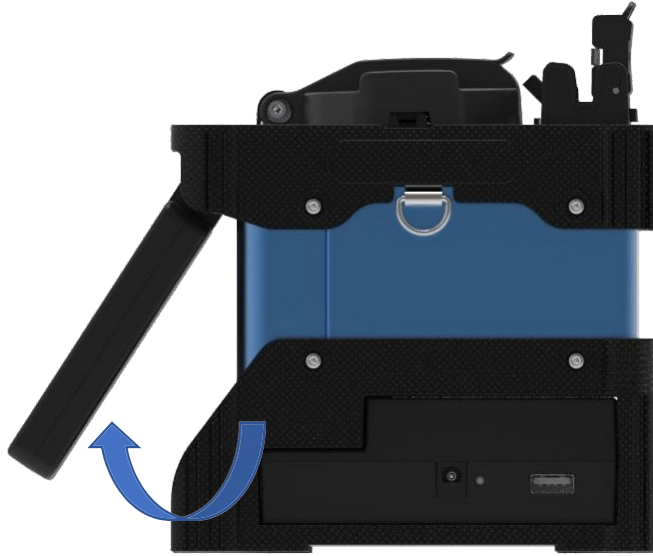
Note: when export the data, please use U-Disk in FAT or FAT32 format




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## 5: Basic Operation

1. To adjust the LCD Screen to a comfortable place to use



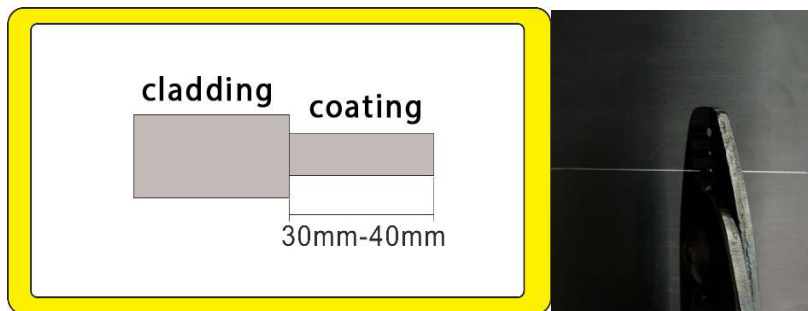
2. Press the power button for 3 seconds,  when the machine turns on, it will enter into standby interface.
3. Put on the fiber heat-shrinking tube:



4. Fiber Preparation:

A. Bare Fiber:

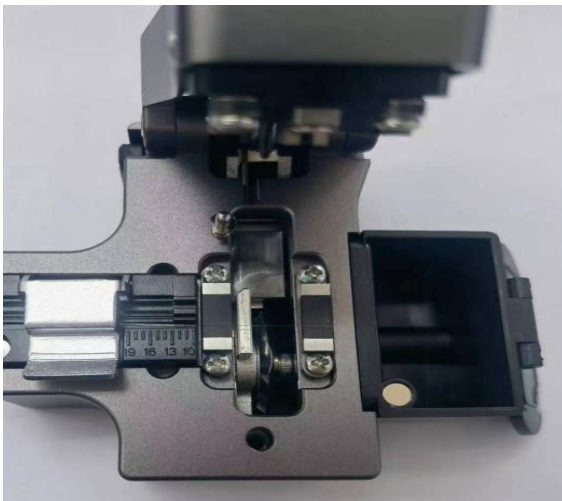
- 1) Take the stripper to remove the first plastic layer of fiber, about 40mm length.



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- 2) Use cotton wipe with anhydrous alcohol to clean the waste that may remain on fiber.

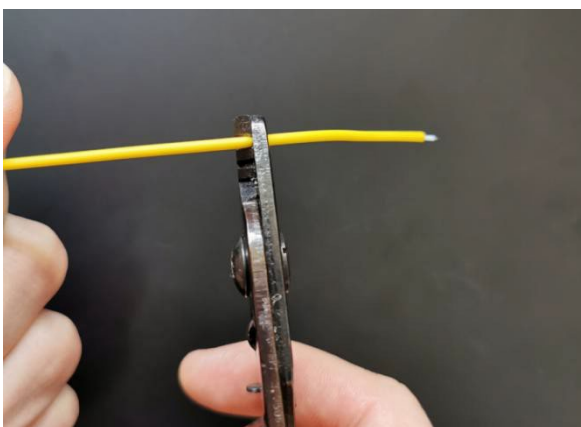


- 3) Cut the fiber with a fiber optical cleaver.

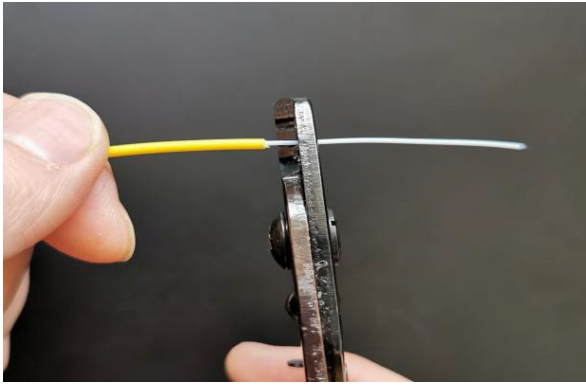


#### B. Patch Cords:

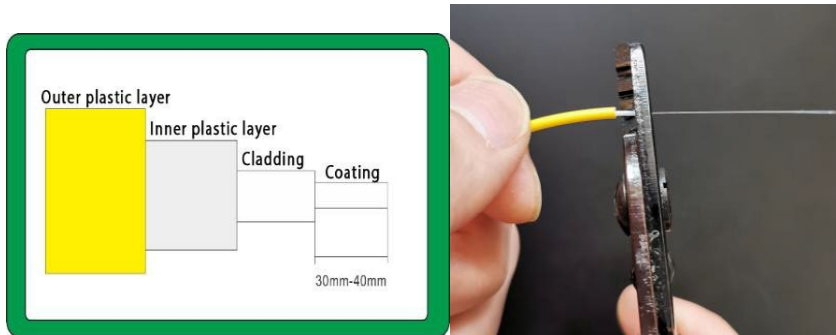
- 1) Take the stripper its 1<sup>st</sup> cutter to remove the plastic lay, length about 35 – 40 mm.



- 2) Take the stripper its 2nd cutter to remove the inner lay plastic, length about 30mm – 40 mm.



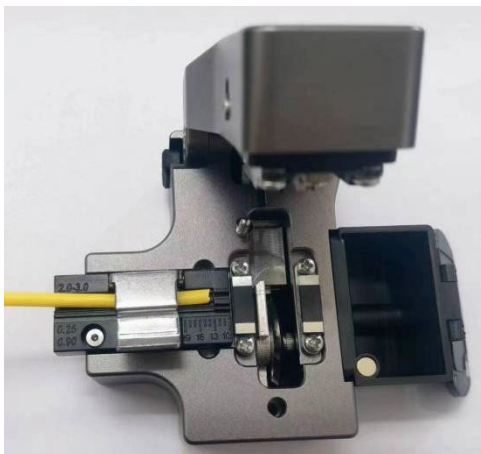
3) Use the stripper 3rd cutter to remove the last layer about length 30mm – 40 mm.



4) Use cotton with anhydrous alcohol to clean the waste that may remain on fiber



5) Cut the fiber with a fiber optical cleaver.



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C. Drop Cable

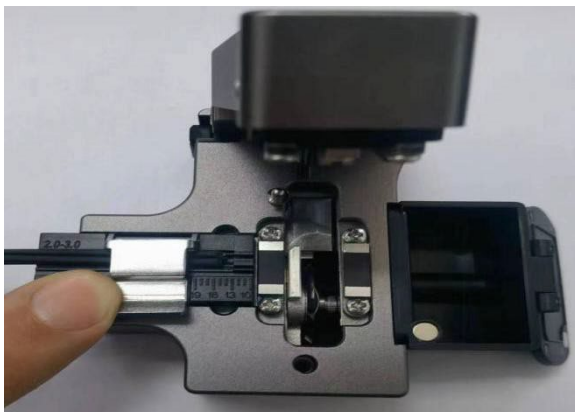
- 1) Use the stripper to cut the drop cable, and then remove the plastic layer.30mm – 40mm



- 2) Use cotton with anhydrous alcohol to clean the waste that may remain on fiber



- 3) Cut the fiber with a fiber optical cleaver



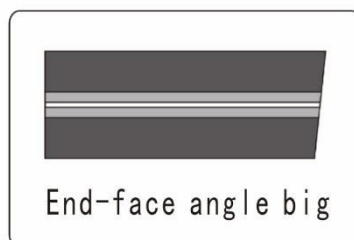
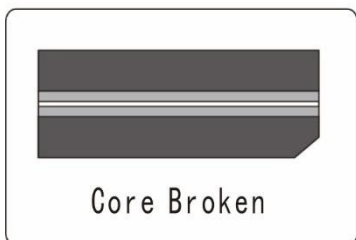
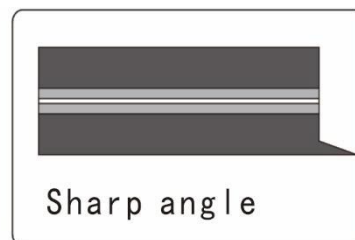
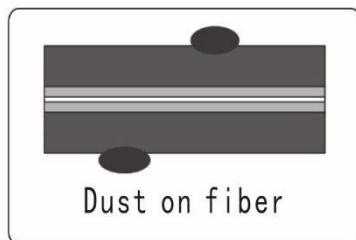
4) Fiber Placing:

- 1) Open the wind-protector
- 2) Place the ready-fiber into V-groove, leave the fiber as close as to the electrodes, then close the clap to hold the fiber.



5. Close the wind-protector:

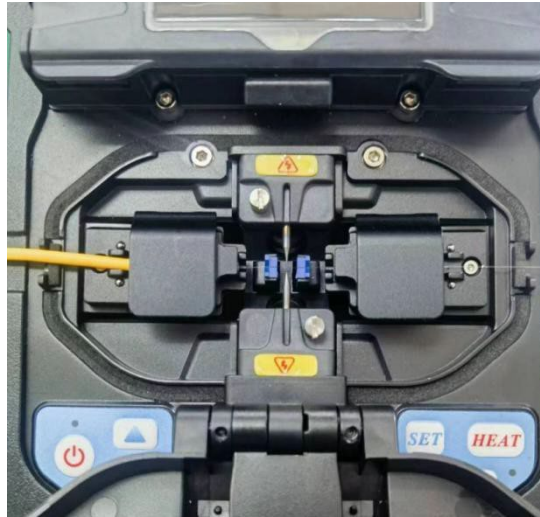
The machine will automatically align the cores in both vertical and horizontal planes, then the fusion process starts. If below faults happen, please re-prepare the fiber:



6. After splicing finishes, open the tube heater and take the welded fiber out as below,







7. Move the heat shrinking tube to the splicing part gently.



8. Put the fiber to the heating tube, and it will automatically heat.



9. Take out the ready fiber and place it to the cooling tray waiting the fiber tube to cool down, then the whole process finished.





## 6: Maintenance

### 1. Cleaning

- a) V-groove cleaning: once a week



- b) Cleaning the upper and lower pressure pads of the clips: once a month.



- c) Cleaning objective lens: once in 6 months

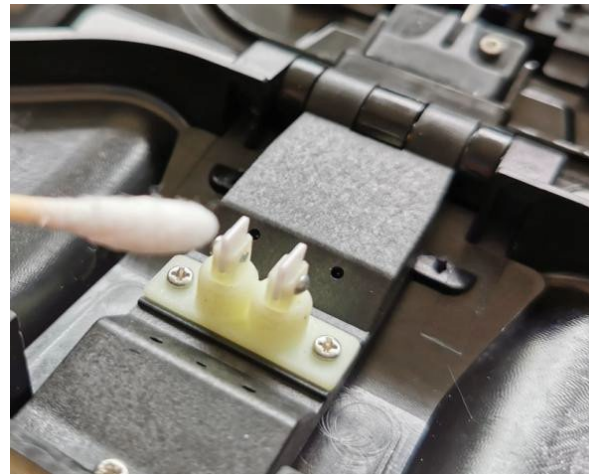


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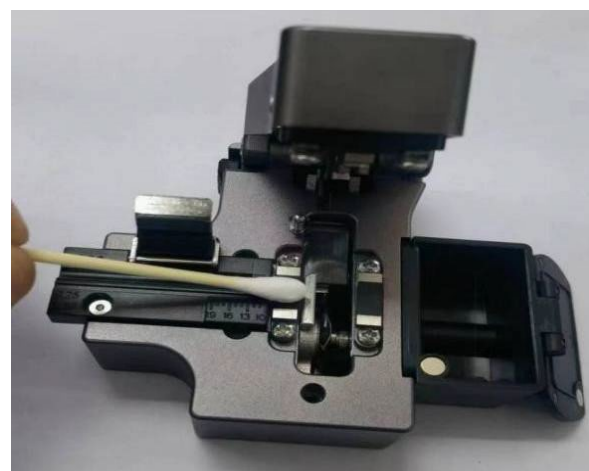
d) Replacing electrode: depends on the situation to replace or clean.



e) Cleaning the fiber presser foot: once a month



f) Optical fiber cleaver cleaning: once a day.



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## 2. Spare parts replacement

### a) Electrode Replacement

It is recommended to replace the electrodes in time after the fusion splicer has been discharged for 4500 times. When the number of discharges reaches 5000 times, if they continue to be used without replacing them, it is likely to cause a very large welding loss and greatly reduce the strength of the welding point. In some cases of high-intensity load work, frequent cleaning of the electrode is also a very effective method to prolong the service life of the electrode.



### b) Replacing cleaver cutting blade



## 3. Arc Calibration

- When first time to use the machine, please do arc calibration first, to achieve the best welding result.
- Every 500 times splicing after, arc calibration is recommended
- When the environment changes (altitude, temperature or humidity etc) , doing arc calibration helps reduce the splicing loss.

## 4. Storage

- If the machine not working in a long time, please store it in a dry environment at 25°C.
- Fully discharge the battery for at least three months, otherwise the capacity of the battery will decrease due to memory effect
- Before storage, please get machine full charged. Power connection and the battery usage instruction

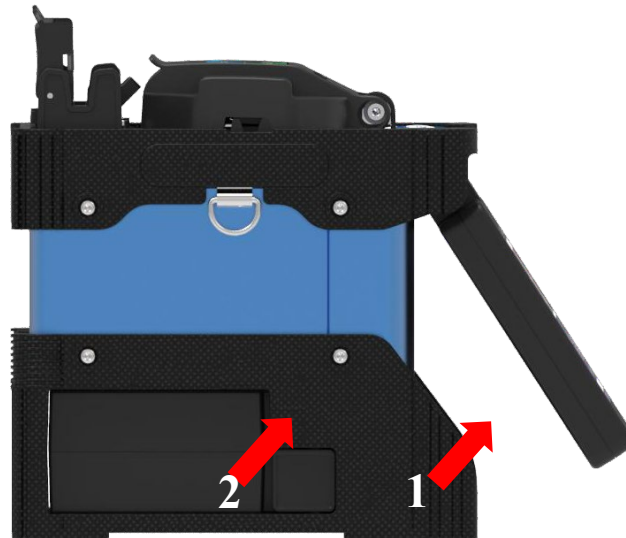
Two methods to supply the power to the machine:



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## 1. Battery

- ① When the battery power is less than 20%, please charge it asap, otherwise the power is not enough for operation of splicing and working.
- ② Press the release button next to the battery, and push it to take the battery out charging, pic as below:



## 2. Directly input the adapter to supply the power. Please use the OEM adapter.

- ① Plug in the adapter, the machine can over charging over working

Instruction light Red: charging statue

Instruction light Green: Charging finished



- ② Take out the battery and charge it separately.

Instruction light Red: charging statue

Instruction light Green: Charging finished





#### Reverse Charge:

- ① The battery can provide 5V, 2A power for the external as emergency power



#### Parameters

##### ✧ Applicable Fibers:

- SM(ITU-TG.652)
- MM(ITU-TG.651)
- DS(ITU-TG.653)
- NZDS(ITU-TG.655)
- BIF/UBIF(ITU-TG.657)

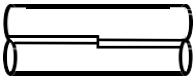


✧ Splicing Loss:

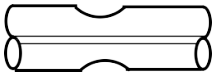
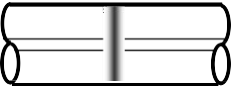
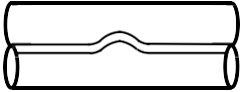
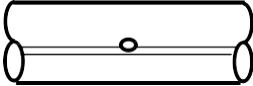
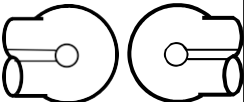
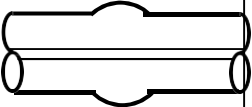
Using the same fiber for welding, the typical value of the splice point loss measured by the ITU-T standard shearing method is:

- SM: 0.02dB
- MM: 0.01dB
- DS: 0.04dB
- NZDS: 0.04dB
- BIF/UBIF: 0.02dB
- Splicing Mode: 10 Preset / User Definable Modes 300 groups
- Storage Of Splice Results: 10000 results
- Splicing time: SM Fast Mode - 6S
- **Tube heating:**
  - Tube sleeve size: 10mm – 60mm
  - Heating time: 10s – 60s, adjustable
  - Typical Heating time: 14s
  - Tube heating mode: 6 presets
- **Power supply:**
  - Input Voltage: AC100~240V, 50/60Hz
  - Output voltage: DC13.5V
- **Dimension & weight:**
  - Dimension: L\*W\*H=144mm\*142mm\*151mm
  - Weight: 2kg (with battery)/1.6kg Environment:
- **Operation Conditions:**
  - Altitude: 0 – 5000m
  - Temperature: -10~+50°C
  - Humidity: 0~95%
  - Wind speed: <15m/s.
- **Storage Conditions:**
  - Temperature: -12°C~ +50°C
  - Humidity: 0~95%,-20~50°C
- **Others:**
  - Observation & Display: 2 cameras, 5-inch LCD Monitor
  - X/Y single display: 300x magnification; X&Y both display: 180x magnification
  - Tension test: 1.96~2.25N
  - USB (Battery): reverse charge USB (machine): Upgrade software, data output

Splice Loss Increase and Solution

Symptom	Name	Cause	Solution
	Core axial offset	Dust on V-groove or fiber clamp chip	Clean V-groove and fiber clamp chip



	Thin	Arc power not adequate	Preform Arc Calibration
		Some arc parameters not adequate	Adjust Pre-fuse Power, Pre-fuse Time, or Overlap
	Line	Some arc parameters not adequate	Adjust Pre-fuse Power, Pre-fuse Time, or Overlap
	Core Curve	Bad fiber end-face quality	Check if fiber cleaver is clean and in good condition
		Pre-fuse power too low, or pre-fuse time too short	Increase Pre-fuse Power or Pre-fuse Time
	Bubble	Bad fiber end-face quality, and dust	Check if fiber cleaver is clean and in good condition
		Pre-fuse power too low, or pre-fuse time too short.	Increase Pre-fuse Power or Pre-fuse Time
	Separation	Fiber stuffing too small	Perform Motor Calibration
		Pre-fuse power too high or pre-fuse time too long	Decrease Pre-fuse Power and Pre-fuse Time
	Bulge	Fiber stuffing too much	Motor calibration or Decrease Overlap
		Pre-fuse power too high	Arc calibration

Note: if repeat the above symptoms, please contact the local authorized distributor for solving problems.

#### Common Fault and Solution

Error	Reason	Solution
Turn on the machine, there is no reaction on LCD Screen or	<ol style="list-style-type: none"> <li>Adaptor wrong plug in or damaged</li> <li>Low battery</li> </ol>	<ol style="list-style-type: none"> <li>Confirm the adaptor plugin in right way</li> <li>Check the adaptor output</li> </ol>





inside wind-protector is not on,	<ol style="list-style-type: none"> <li>3. Short circuit or malfunction inside the machine</li> <li>4. Battery damaged</li> <li>5. Battery not fully inserted to the machine</li> </ol>	<p>voltage is 13-14V</p> <ol style="list-style-type: none"> <li>3. Check whether foreign objects inside machine lead to short circuit, then restart the machine. If still problem, please contact the local distributor for solving problem.</li> <li>4. Re-insert the battery</li> </ol>
Fiber image on the screen is blur	Fiber got wrong placed, not into the V-groove	<ol style="list-style-type: none"> <li>1. Again open and close the wind-protector</li> <li>2. Replace the fiber</li> <li>3. Clean the V-groove</li> </ol>
Without aligning to splicing, the splice loss is big or failed.	<ol style="list-style-type: none"> <li>1. Dirt on fiber, or bad fiber end-face</li> <li>2. Dust or dirt on the lens</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the fiber cleaver, and cut the fiber again</li> <li>2. Clean the lenses</li> </ol>
Fiber can't enter V-groove smoothly, and image blur	<ol style="list-style-type: none"> <li>1. Dust or dirt on V-groove</li> <li>2. Dirt on fiber presser</li> <li>3. Lens focal length not reset</li> <li>4. Incorrect place fiber in clipper</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean the V-groove</li> <li>2. Use cotton to clean the fiber presser</li> <li>3. Press reset button</li> <li>4. Replace the fiber</li> </ol>
Electrodes do not discharge	<ol style="list-style-type: none"> <li>1. Electrodes damaged or the high-voltage board is fault</li> <li>2. Low battery</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace the electrodes</li> <li>2. Charge the battery</li> <li>3. Contact the after sales service for maintenance</li> </ol>
Splicing smoothly but the loss is big	<ol style="list-style-type: none"> <li>1. Inappropriate discharge current</li> <li>2. Fiber push error</li> <li>3. Electrodes over work</li> </ol>	<ol style="list-style-type: none"> <li>1. Discharge arc calibration</li> <li>2. Motor calibration</li> <li>3. Increase/decrease splicing overlap</li> <li>4. Replace the electrodes</li> </ol>
Spliced fiber has bubble, gets fat etc.	<ol style="list-style-type: none"> <li>1. Fiber gets dirt</li> <li>2. Bad fiber End-face</li> <li>3. Incorrect splicing mode</li> </ol>	<ol style="list-style-type: none"> <li>1. Use anhydrous alcohol to clean the fiber then cut</li> <li>2. Set the correct splicing mode</li> </ol>
Heater failed to complete heat the hot shrinking sleeve	<ol style="list-style-type: none"> <li>1. Auto heating mode turn off</li> <li>2. The sensor foot on the heater is not pressed by the fiber</li> <li>3. Inappropriate heating mode</li> <li>4. Inappropriate heating time</li> </ol>	<ol style="list-style-type: none"> <li>1. Manually press the heating button</li> <li>2. Replace the hot-shrinking tube</li> <li>3. Setting relevant heating mode according to the tube type</li> <li>4. Increase the heating time</li> </ol>

Note: If you have tried all the methods above and the problem persists, please contact the after-sales service of your local authorized distributor for assistance.



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## 7: Warranty

We do not recommend that users attempt to repair the product by themselves.

- Our company guarantees its product quality with a warranty period valid for 18 months from the date of shipment. If any quality issues are identified within this period, we will provide appropriate repairs or replacements.
- If an issue arises during the use of the instrument that cannot be resolved using common troubleshooting methods, please contact our marketing or after-sales team. Users must not open the chassis without authorization, as this will void the warranty.
- For quality failures caused by production defects, the manufacturer will provide free repair or replacement of the instrument. This warranty applies only when the instrument is used under normal conditions and has not been subjected to damage or improper handling.
- The warranty does not cover:
  - Wear-and-tear components.
  - Problems or faults caused by:
    - Unauthorized repair or modification of the instrument.
    - Improper use, negligence, or accidental damage.



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## 8: Appendix I

### Warranty Registration Card

Serial Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

TEL: \_\_\_\_\_

FAX: \_\_\_\_\_

E-mail: \_\_\_\_\_

(Please keep the details written above.)

(Please cut along the dotted line below and send back to [sales@dintek.com.tw](mailto:sales@dintek.com.tw) within 1 month of receiving goods.)

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### DINTEK Warranty Registration COPY

Serial Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

TEL: \_\_\_\_\_

FAX: \_\_\_\_\_

E-mail: \_\_\_\_\_



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## **Appendix II**

### Warranty notice

1. During the warranty period, the user can present this warranty card and invoice or receipt (photocopy) in the event of a malfunction in using this product under normal conditions and can enjoy unpaid maintenance services.
2. In the following cases, it is necessary to pay for repairs, and charge certain materials, maintenance fees and shipping charges as appropriate;
  - 1) Failure occurred when the product is used under normal conditions, but it has exceeded the warranty period.
  - 2) The warranty card is not presented. The warranty card is missing, altered or missing.
  - 3) Use under abnormal conditions, such as man-made damage, or under abnormal conditions such as high temperature, high pressure, and humidity, pay for maintenance normally depending on the damage.
  - 4) Failure and damage caused by non-product quality problems.
  - 5) Faults and damages that are not caused by the instructions and precautions in the manual.
3. The following circumstances, the company will not be maintained:
  - 1) Unauthorized repair or modification of the instrument without the consent of the company.
  - 2) Products not produced and sold by the company.

