

AI-20

THE FOURTH GENERATION TRUNK LINE OPTICAL FIBER FUSION SPLICER

Built-in high precision

Delay return electric one-step fiber cleaver



Accurate of fiber alignment: 0.1 µm

Full link integration design **Highly integrated**

The AI-20, the fourth generation fiber fusion splicer developed by Signal fire, is the latest generation of fiber fusion splicer designed for full link integration. It combines Signal fire's latest research and development of a delayed return electric one-step cleaver with fiber fusion splicing, while integrating OPM and VFL functions. Combined with a nine in one signalfire fiber stripper, a combinable workbench and worktable, it truly becomes a compact, lightweight, and easy to operate fiber fusion splicer, which will greatly improve your work efficiency.



SIX MOTORS



FIBER CORE ALIGNMENT









WITHIN OPM **FUNCTION**



WITHIN VFL **FUNCTION**



DELAY RETURN ELECTRIC ONE-STEP FIBER CLEAVER



SIGNAL FIRE **STRIPPER**

Humanized design meets different Construction environments







Compact and portable

Climbing high is also easy

Bench+support platform







Can be used as a bench

Host support /protection console

Equipped with signal fire stripper

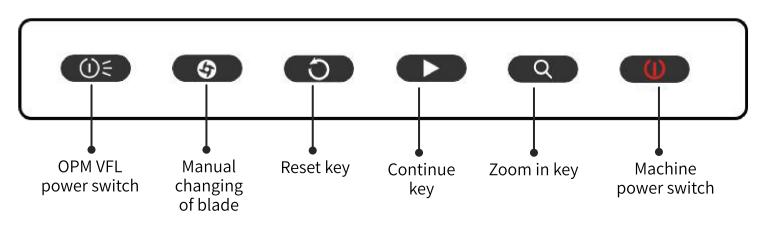


Signal fire AI-20 fusion splicer applies multiple of the latest patented technologies of Signal fire, and adopts a more advanced central processing unit, more advanced algorithms, and higher precision cameras. The weight of bare machine,tool case and complete set of accessories only 4.5kg, size of tool case is 25.5cmx16.5cmx23cm. In such a compact and compact situation, the combination design of workbench and bench has been achieved simultaneously. 1 second startup, 6 seconds rapid fusion, 15 seconds heating, 5-inch color high-definition LCD screen, 320x magnification, 7800mAh large capacity lithium battery can fuse and heat 240 cores, still performs well in harsh environments such as high altitude, dry, and cold.

Exquisite craftsmanship High standard design

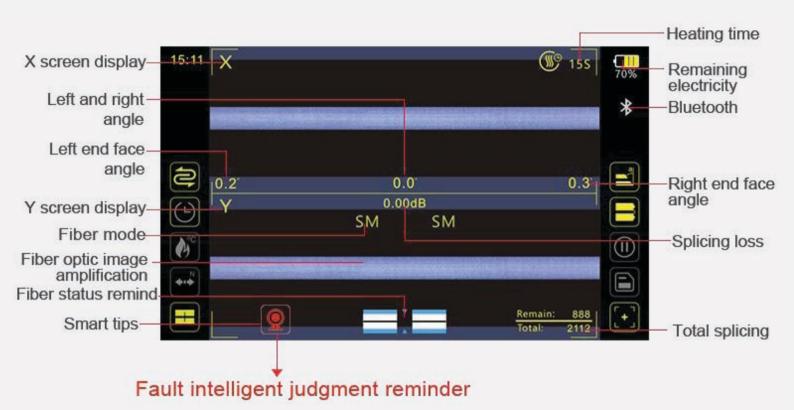


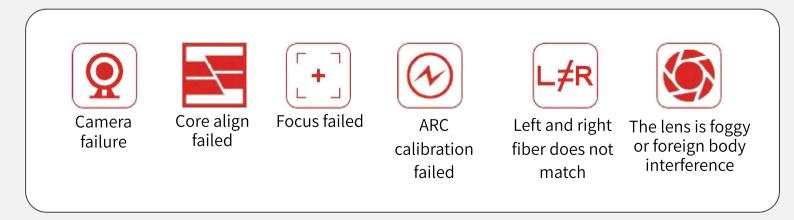
The buttons are clear and beautiful



Display 5 inch TFT color display screen

320X (X or Y axis single display) 200X (X and Y axis dual display)





Built-in high precision delay return electric one-step fiber cleaver



Signal fire new generation fiber fusion splicer has significantly reduced the actual weight and volume of the entire equipment by reducing auxiliary tools and improving the automation level, ultimately achieving a true improvement in fusion quality and efficiency. This is the fourth generation fiber fusion splicer that we first launched, and the core is full link integration design, highly integrated.

Blades surface automatically manually change delayed cleaver return



AUTOMATIC CHANGE

Cleaver blades surface automatically change when the current cutting point cut fiber more than 1000 times and continuously shown three times unqualified cutting results.

MANUAL CHANGE

Manual button operation, cleaver blades surface will change. Cleaver has 24 cutting points in total, current cutting point cut numbers, blades total cut numbers, Available within the APP.



AUTOMATIC DELAYED CLEAVER RETURN

Perfectly solves the problem of traditional mechanical one-step cleaver back cutting scratching the fiber end face. The factory standard delay time is set to 0.5 seconds, and the adjustable range is 0.2 seconds to 2 seconds.



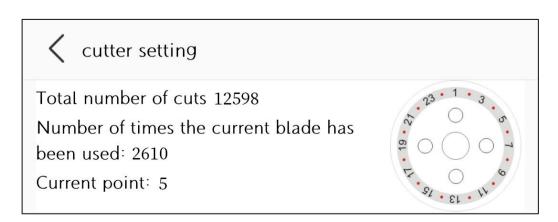
CLEAVER LED AUXILIARY LIGHTING

Brightness can be adjusted through APP.

APP Bluetooth connection

| System parameters | | Save |
|--|----|----------------------|
| Blade change stroke | 40 | Value range 10 ~ 100 |
| Cutter face change stroke | 30 | Value range 10 ~ 100 |
| Cutting speed 1 | | Value range 1~5 |
| Return blade delay 500 ms Value range 200 ~ 2000ms | | |

| Blade usage details and rotating blade face | | > |
|---|----------|--------|
| Replace the blade | | > |
| How to adjust blade height | | > |
| LED brightness adjustment | 20 40 60 | 80 100 |
| | | |



Built-in VFL and OPM function

Measure fiber link loss/luminous flux Fiber line tracking, breakpoint/light leakage detection



OPM

Switch between ten states

Wavelength: 850nm、1300nm、1310nm 1490nm、1550nm、1625nm、980nm 1270nm、1577nm、1650nm **VFL**

Switch between three states

power: 15mW, 2Hz flashing and steady on mode

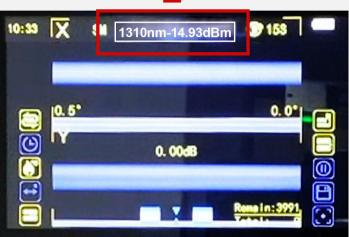
Real-time luminous flux assisted alignment

Only applicable to environments with stable optical signal link from front

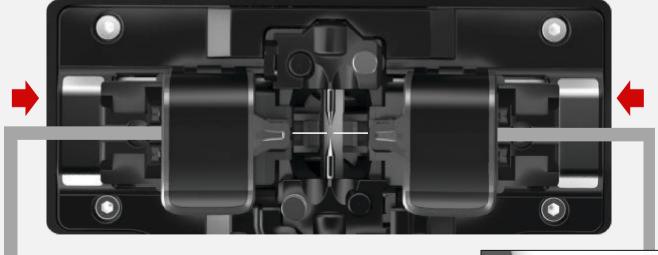
Intelligently analyze the alignment point with the lowest splicing loss and then splice the fiber

Splicing is completed





Real-time luminous flux assisted alignment technology developed by Signalfire, which intelligently analyzes the alignment point with the least loss to minimize the fiber fusion loss.



Optical fiber on the left which is stable optical signal link



Optical Fiber on the right with fast connector which has pluged to OPM Port

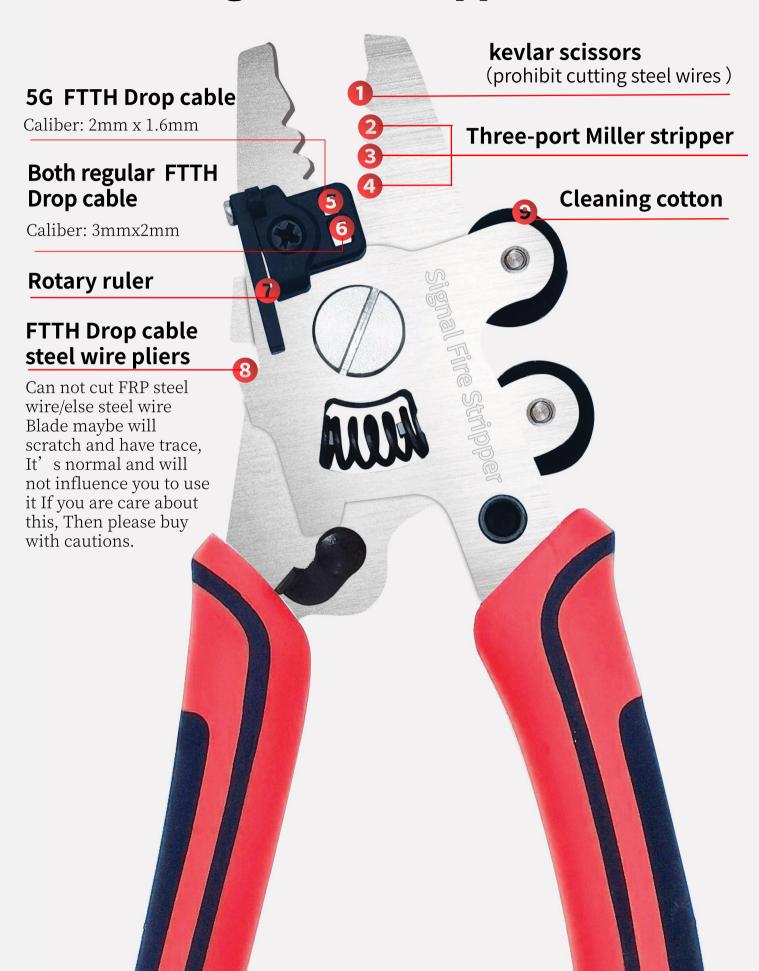
Equipped with signal fire stripper



A GOOD STRIPPER
NINE FUNCTIONS

kevlar scissors
Three-port Miller stripper
5G FTTH Drop cable
Both regular FTTH Drop cable
FTTH Drop cable steel wire pliers
Rotary ruler
Cleaning cotton

Signal fire stripper



7800mAh lithium battery

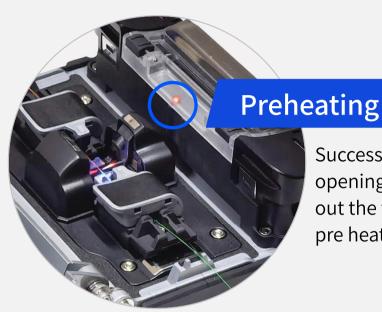
Dual charging path

In full state, 240 cores can be continuously fused and heated



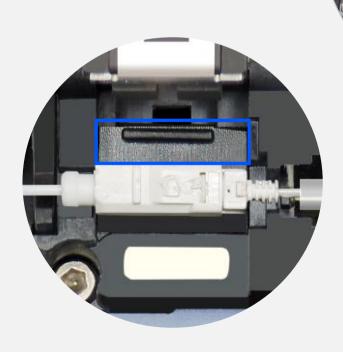
Charging time ≤3.5 hours

15S automatic heating



Successful fiber spliced. When opening the windproof cover to take out the fiber, the machine turns on pre heating for up to 6 seconds

Heating part automatic lid closing



Heating part compatible with SC fiber

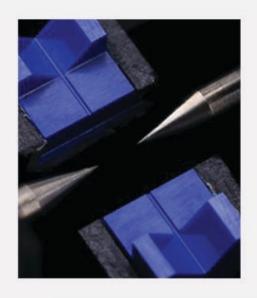
SC Fiber: Push up

Ordinary fiber: Push down



3-IN-1 UNIVERSAL FIBER HOLDER

SM, MM, bare fiber, pigtail, Drop cable, multi fiber cable









EXQUISITE DETAILS

THE BUTTONS ARE CLEAR AND BEAUTIFUL

COOLING RACK
EXPANDABLE
AND CLOSARIE





ULTRA THICK PROTECTIVE RUBBER PAD

Thickened buffer structure provides maximum protection

Outdoor fiber splicing Compact and portable



10 languages available

Multilingual Settings, covering the global market



Exported to nearly 100 countries and regions worldwide

Get unanimous praise from customers!



Basic parameter

| Fiber alignment | Core/cladding; Real-time luminous flux assisted alignment (Only applicable to environments with stable optical signal link from front) | |
|------------------------|---|--|
| Motor number | 6 motors Accurate of fiber alignment :0.1µm | |
| Splicing time | 6s | |
| Heating mode | 15s, can be customized according to the external environment | |
| Fiber type | Single-mode fiber (SMF/G.652), BIF/G.657); Suitable for single mode, multi-mode, bare fiber, tail fiber, drop cable, jumper, invisible optical fiber. | |
| The cladding diameter | 80-150μm | |
| Splicing loss | 0.02dB (SM) 、0.01dB (MM) 0.04dB (DS/NZDS) | |
| Splicing mode | Automatic focusing core alignment, conventional/high precision splicing | |
| Splicing way | Automatic, semi-automatic,manually | |
| Fiber cleaver | High precision delay return electric one-step fiber cleaver | |
| Fiber holder | Three in one fixture, no need to change, suitable for single/multi-mode, multi-core cable/bare fiber, tail fiber, jumper fiber,drop cable | |
| VFL | The machine comes with power: 15mW, 2Hz flashing and steady on mode | |
| ОРМ | Wavelength: 850nm、1300nm、1310nm、1490nm、1550nm、1625nm、980nm、1270nm、1577nm、1650nm/Measurement range: -50+30dbm Absolute error: <0.3dB (-50dbm ~+3dBm range) | |
| Battery capacity | 7800mAh large capacity lithium battery charging time ≤3.5 hours; It can continuously weld and heat about 240 cores | |
| Magnification | 320x (X or Y axis single display), 200x (x and Y axis dual display) | |
| Fiber diameter | Coating diameter: 80-150µm/Coating diameter: 100-1000µm | |
| Cutting length | Coating layer 250µm below: 8-16mm/coating layer 250-1000µm: 16mm | |
| Heat shrink tube | 60mm、50mm、40mm、25mm | |
| Tensile testing | standard 2N | |
| display | 5 inch TFT color display screen | |
| Boot time | 1s, boot can enter the working mode | |
| Data is stored | Unlimited, machine storage 1000 groups, the excess part can be stored in the server, can export data. | |
| Wireless communication | Based on bluetooth 4.2 protocol standard, the working band is 2.4GHz, the maximum transmission range is 60m | |
| Software upgrade | Mobile phone APP Internet update, enable Bluetooth synchronization upgrade machine software | |
| Management function | The equipment owner can be bound as the highest authority, and can remotely view the splicing records, splicing time, loss, etc. through the mobile phone APP. The number of splicing times or working time of the equipment can be set. The manager can effectively manage a single or multiple equipment. | |
| Return loss | Better than 60 db | |
| Product protection | Waterproof, dustproof and fall proof | |
| Power supply | Input AC100-240V 50/60Hz, output DC13.5V/4.8A, the current power mode can be identified, real-time monitoring of the current battery level | |
| The work environment | Temperature: -15 ~ +50°C, humidity: < 95%RH (no condensation), working altitude: 0 ~ 5000m, maximum wind speed: ≤15m/s | |

Accessories in the tool box



- Toolcase
- 2 Fusion splicer
- 3 Spare electrode
- 4 signal fire stripper (Including a bag of cleaning cotton)

- **6** Alcohol bottle
- **6** Cleaver cleaning cotton swab
- **1** Allen wrench
- 8 Brush

- Olimbing combination hanging chain
- Toolbox strap
- 1 Belt
- Power adapter
- 3 User's manual / Quality Certificate / Warranty Card / Fiber for ARC

Size and weight



Machine size

165mm x 255mm x 185mm

Machine weight

3.09kg



Toolbox size

165mm x 255mm x 230mm

Weight of toolbox

(complete set) 4.50kg



Total size

340mm x 255mm x325mm

Total weight

5.50kg

SERVICE COMMITMENT

Five years warranty, but these circumstances are not within the scope of this provision.

- *O1.* Except for the cleaver, Signal fire stripper, fiber holders and other tools whose life depends on the frequency of use and the use of the environment. Also electrodes are consumption material which are not in the warranty.
- *O2.* Battery and power adapter are warranty for one year, it is in free warranty where it is damaged or can not be charged in one year.
- 03. Electrodes are consumables, the service life of each pair of electrode is 4000 times.



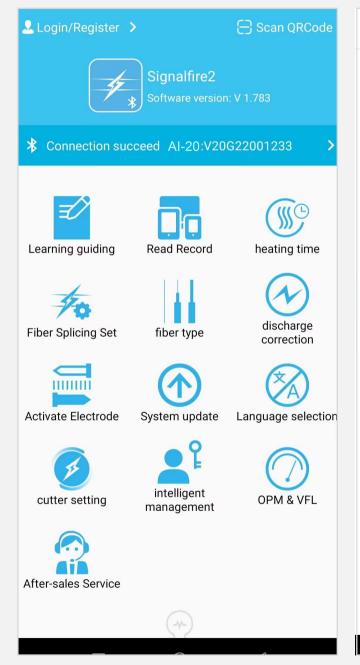
Establishing wireless communication through Bluetooth technology to achieve data transmission

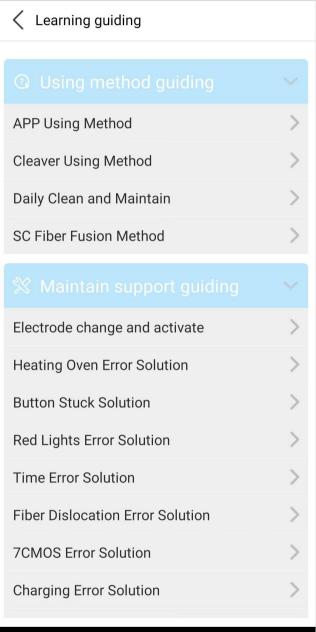


- Welding record can be read through mobile phone, and the data can be exported;
- You can set the parameters of the welding machine, such as selecting the machine language, changing the heating time, selecting the fiber optic alignment mode, etc;
- You can manage the welding machine, such as setting the use time of the machine, welding times, etc;
- Upgrade the phone APP, bluetooth connected to the machine to upgrade the machine software;

Intelligent interaction, avoid tedious

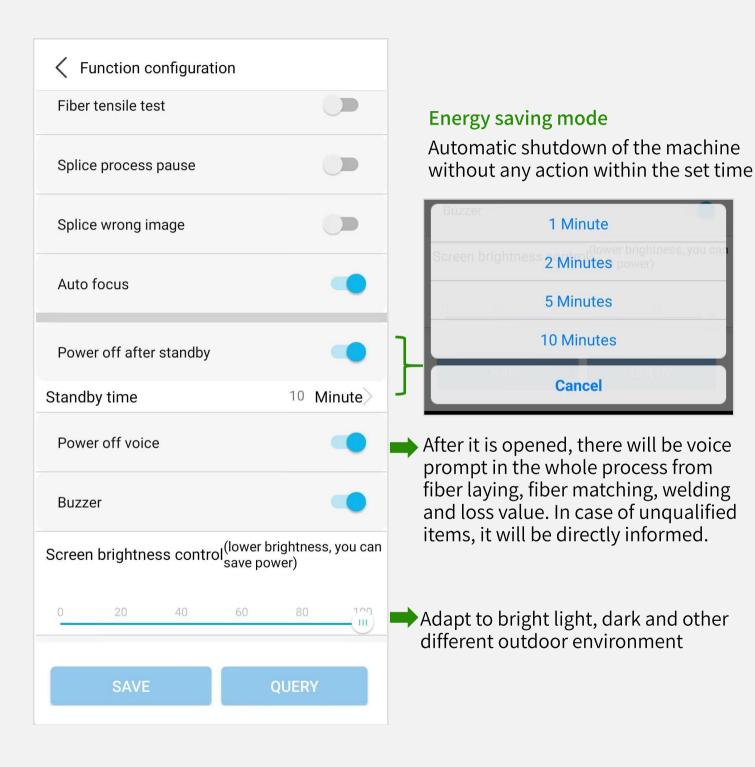
Scan the QR code of the welding machine startup screen to download the Mobile APP The phone connects to the splicer via Bluetooth

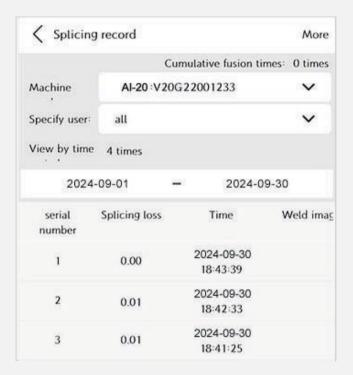




APP main interface

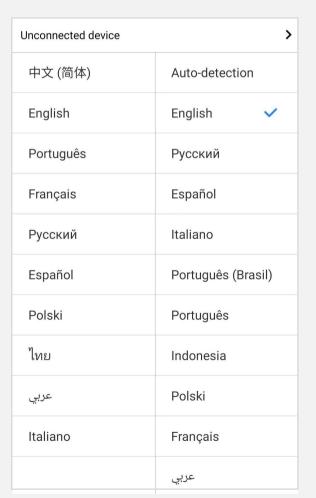
Learning guidance interface



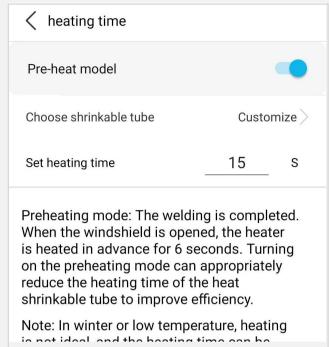


Splicing records can be downloaded and exported

Unlimited storage of splicing records
Can be viewed on mobile devices

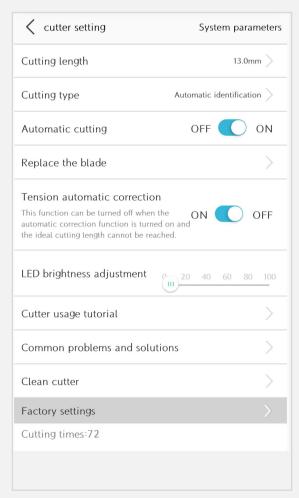


Fusion splicer language/ mobile app selection



Heating time customization

Extreme cold/high temperature can be extended or shortened appropriately



Cleaver Parameter setting /adjustment



Signal Fire Technology Co., Ltd. is a high-tech joint-stock enterprise specializing in the research and development, production, and sales of communication equipment, with a registered capital of 10 million. It is a national high-tech enterprise. Our main products include fiber optic fusion splicers, electric fiber cleaver, OTDR (Optical Time Domain Reflectometer), and 9-in-1 optical fiber stripper. They are widely used in the construction, maintenance, emergency repair, security monitoring, and research and teaching of optical cable lines in telecommunications, mobile, China Unicom, radio and television operators, post and telecommunications, railway, engineering companies, and public institutions.





The factory is located in Chengdu High tech International Enterprise Port, with a modern production factory and standardized office buildings. We have passed the ISO9001 international quality management system certification, and our products have passed the EU CE, ROHS.International certifications such as FCC in the United States and UKCA in the United Kingdom have been passed by the National Institute of Quality Supervision and Inspection, China Academy of Information and Communications Technology.









The qualified testing of Taier Laboratory has obtained nearly a hundred domestic and international patents at the same time. The "Signal Fire" series products have been sold to over 100 countries and regions including North America, South America, Europe, Africa, and Asia, and have received unanimous praise from customers.









Operator winning bid brand







Telecom installation and maintenance skills competition, Signal fire fusion splicer excellent performance, won the group first prize





Exhibition photos



Intellectual Property Inspection and Certification

Signal Fire Technology Co., Ltd. has passed the ISO9001 international quality management system certification. The product has passed international certifications such as the CE, RoHS, the United States FCC, and UKCA in the United Kingdom, and passed the qualified test through National Quality Supervision Institute, China Xintong Institute, and Tel Laboratory. At the same time, we obtained nearly 100 patents.









United States of America



Reg. No. 7,197,549 Registered Oct. 17, 2023 Int. Cl.: 7

Trademark Principal Register Signal Fire Technology Co.,Ltd. (CHINA limited company (ltd.)) No.1111,Changsheng Bridge,Hongguang Town Small and Micro Enterprise Innovation Park,Pidu Dist,Chengdu, CHINA 611730

CLASS 7: Cutting machines; Electric are cutting apparatus; Electric are welding apparatus; Electric scissors; Electric shearing machines; Electric welding machines; Electrodes for welding machines; Gear cutting and finishing machines; Knives, electric; Soldering apparatus, electric

FIRST USE 6-15-2014: IN COMMERCE 6-15-2014

The mark consists of the stylized wording "Signal fire" with a rainbow bridge above the stylized letters "ignal fir".

SER. NO. 97-339,851, FILED 03-31-2022



Katherine Kuly Vidal
Director of the United States
Patent and Trademark Office



United States of America United States Patent and Trademark Office



Reg. No. 7,197,550 Registered Oct. 17, 2023 Int. Cl.: 8

Trademark Principal Register Signal Fire Technology Co.,Ltd. (CHINA limited company (ltd.) No.1111.Changsheng Bridge, Hongguang Town Small and Micro Enterprise Innovation Park, Pidu Dist, Chengdu, CHINA 611730

CLASS 8: Nippers; Pliers; Scissors; Blades for manually-operated tools; Hand-operated cutting tools; Hand-operated shears; Hand tools, namely, graving tools; Hand tools, namely, scrapers; Hand tools, namely, wire strippers; Multi-tool knives

FIRST USE 6-15-2014; IN COMMERCE 6-15-2014

The mark consists of the stylized wording "Signal fire" with a rainbow bridge above the stylized letters "ignal fir".

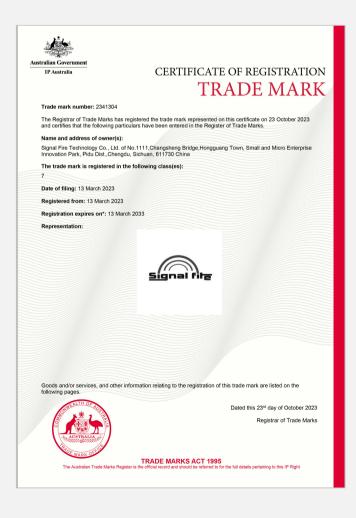
SER. NO. 97-339,852, FILED 03-31-2022



Kathwine Kully Vidal

Director of the United States
Patent and Trademark Office













European Patent Office 80298 MUNICH

Questions about this communication?
Contact Customer Services at www.epo.org



Lermer, Christoph Nove Haus - Design Offices Luise-Ullrich-Straße 14 80636 München ALLEMAGNE

03.09.2024

Reference P9499EUEP Application No./Patent No. 19945932.2 / 4024101 Signal Fire Technology Co., Ltd.

European patent with unitary effect

Communication of the date of registration of unitary effect pursuant to Rule 7(1) UPR

The request for unitary effect received at the EPO on 21.08.24 meets the requirements of Rules 5(2) and 6 UPR

The unitary effect of European patent No. EP4024101 was registered in the Register for unitary patent protection on 03.09.24.

Date of effect Under Article 4(1) Regulation (EU) No 1257/2012, the European patent with unitary effect takes effect in the participating Member States on the date of publication of the mention of the grant of the above European patent in the European Patent Bulletin, i.e. on 14.08,24.

Territorial scope
Pursuant to Article 18(2) Regulation (EU) No 1257/2012, by way of derogation from Articles 3(1), 3(2) and
4(1), a European patent for which unitary effect is registered has unitary effect only in those participating
Member States in which the Unified Patent Court has exclusive jurisdiction with regard to European
patents with unitary effect at the date of registration. For the above European patent with unitary effect,
the participating Member States at the date of registration are:

AT BE BG DE DK EE FI FR IT LT LU LV MT NL PT RO SE SI

Signal Fire Technology Co., Ltd. No.B-6 Qingyang Zone For proprietor(s):

Jiaolong Industrial Park Qingyang District Chengdu, Sichuan 610015

Lermer, Christoph Nove Haus - Design Offices Luise-Ullrich-Straße 14 80636 München DE

The registration will be published in the European Patent Bulletin under Section IV.2(1).

Registered Letter

Application No /Patent No. 19945932.2 / 4024101

For the Unitary Patent Protection Division



NOTES RELATING TO THE REGISTRATION OF UNITARY EFFECT

This guide – available on the EPO website – provides useful information on European patents with unitary effect

2. Payment of renewal fees for European patents with unitary effect

2.1 Under Rule 13(1) to (3) UPR, renewal fees for European patents with unitary effect and additional fees for their late payment are to be paid to the EPO. Those fees are due in respect of the years following the year in which the mention of the grant of the European patent which benefits from unitary effect is published in the European Patent Bulletin.

2.2 Under Rule 13(4) UPR, a renewal fee in respect of a European patent with unitary effect falling due within three months of the notification of the communication referred to in Rule 7(1) UPR may still be paid within that period of three months without an additional fee.

2.3 Moreover under Rule 13(6) UPR, a renewal fee for a European patent with unitary effect which would have fallen due under Rule 13(2) UPR in the period starting on the date of publication of the mention of the grant of the European patent in the European Patent Bulletin up to and including the date of the notification of the communication referred to in Rule 7(1) UPR is due on that latter date. This fee may still be paid within three months of that latter date without the additional fee referred to in Rule 13(3) UPR.

For further details you are recommended to consult the above-mentioned Unitary Patent Guide

3. Effect of revocation or limitation of the European patent

Under Article 3(3) Regulation (EU) No 1257/2012, the unitary effect of a European patent is deemed not to have arisen to the extent that the European patent has been revoked or limited.

EPO Form 7030 01.22