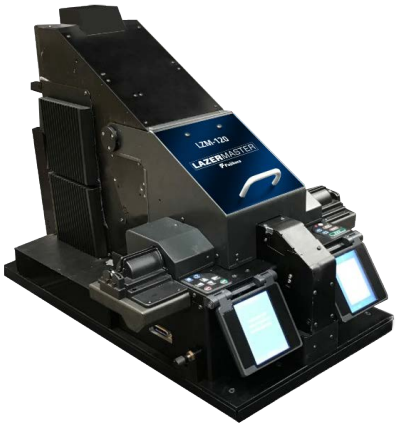
Fusion Splicing Systems

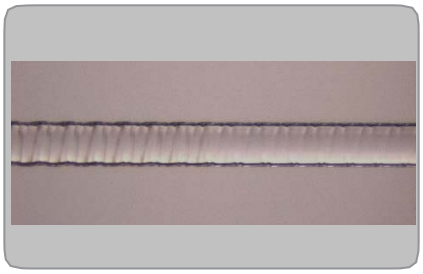


LAZERMaster™

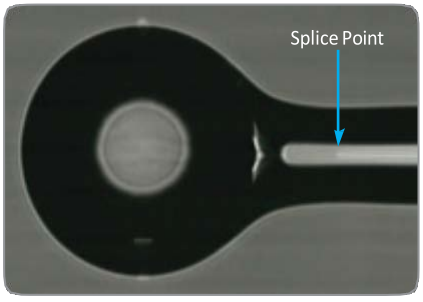
LZM-120A+

The LZM-120A+ LAZERMaster is a splicing, glass processing system, and fiber ablation machine that uses a CO2 laser heat source to perform splicing, tapering, lensing, ablation (for cleaving and mode stripping) or other glass shaping operations with glass diameters up to 2.3 mm. The high resolution optical analysis system works in conjunction with on- board firmware for fully automatic splicing, tapering and other glass shaping processes.

High precision glass processing is enabled by the intuitive and user-friendly on-board firmware (virtually identical to that of the Fujikura FSM-100 splicers). Operations may also be performed manually and by PC control. The FPS PC control GUI is supplied with the LZM-120A+ to provide additional features, greater flexibility and finer control.
The FSP GUI may be used on a PC chosen by the customer. Customers can also create proprietary PC control algorithms using a complete set of PC control commands.



Surface Ablation



Coreless Ball Lens to Collimate SMF Fiber

Tapered Probe with Small Ball End

Features

- Fiber Ablation that can be used for cleaving, shaping, or custom mode stripping
- Splicing and glass processing of 80 µm to 2.3 mm fibers
- High resolution motion for precise control during splicing and glass processing operations
- Automatic beam alignment and ablation focusing through new active mirror and focus motors.
- Extensive library of applications which are similar between the LZM and FSM family
- FPS PC GUI provides additional measurement capabilities and glass shaping control
- Very clean heat source: No deposits on fiber surface as might occur with filaments or electrode systems
- Provides extremely stable and repeatable operation with virtually no maintenance
- Substantially reduces maintenance and calibration requirements
- Proprietary feedback system ensures heating power stability
- No need for process gas (as required with filament systems) or Vacuum systems
- Class 1 Laser with redundant automated laser safety features

Ordering Information

DESCRIPTION	ITEM NO.
LAZERMaster LZM-120A+ Glass Processing and Splicing System (Standard baseline LZM-120 system. Includes AC adapters and cords and FPS PC	S017140
Optional Tablet PC (includes FPS software pre-installed) (recommended)	S016772
LZM Training (Optional US based at customer locations)	S015867
LZM Training (Optional International)	S015868
Splicer V-Groove Cleaning Kit	S014397

Fusion Splicing Systems

Specifications

Fiber Heating and Splicing Method	CO_2 Laser
CO_2 Laser Power	30 W standard
Laser Safety Features	Metal cover with interlock, class 1 enclosure Automatic actuation of safety shutter Automatic laser power cutoff Triple redundancy
Laser Beam Control	Proprietary feedback system assures laser beam power stability Laser beam size and shape may be customized (standard beam size is 4.5mm X 2mm and a minimum spot of 30um for ablations)
Typical Splice Loss	0.02 dB for SMF (ITU-T G.652)
Typical Splice Strength	250+ kpsi for SMF (ITU-T G.652) using appropriate fiber preparation equipment
Camera Field of View	2.3 mm
Fiber Observation Methods	• PAS (Profile Alignment System) via transverse fiber observation. • WSI (Warm Splice Image) and WTI (Warm Taper Image) • End-view observation
Applicable Fiber Diameter	80 µm to 2300 µm for automatic alignment by PAS Larger diameter fibers or endcaps may be aligned manually or by power meter feedback
V-Groove Clamping System	Infinitely variable from 80 µm up to 2300 µm Clamping bare fiber or fiber coating Patented "split V-groove"
Fiber Handling	Fujikura FSM-100, FSM-45, and FSM-40 splicer fiber holders Custom fixtures to meet specific customer
Alignment Methods	PAS (Profile Alignment System, automatic alignment by camera observation) Manual PC control wit Power meter feedback via GPIB / USB End-view
Endless Theta Rotation	360º endless rotation, angle resolution 0.1º
X/Y Alignment Resolution	Sub-micron
Maximum Z Travel Length	36 mm (both left and right Z units) as well as sweep
Z Travel Resolution	0.125 µm theoretical
Maximum Taper Length	32 mm
Maximum Taper Ratio	10:1 standard (For uniform direction, one-pass tapering) Dual direction tapering offers greatly increased taper ratios, as does tapering with more than one tapering pass.
Maximum Taper Speed	1 mm/sec standard
Splicing Control	Internal firmware or operation by PC
Fiber Tapering and Glass Shaping	Internal firmware or operation by PC
PC Control	FPS software will be provided Complete command set for PC control
PC Option	Optional Tablet PC (includes FPS software pre-installed). Use of the FPS software on a PC provides finer control and additional features compared to the LZM-110 internal firmware
Interface Ports	USB 2.0 (For PC communications, data and image download, etc.) GPIB / USB (for power meter feedback)
Electrical Power	100-240 VAC
Operating Conditions / Storage	5 to 40° C / -10 to 60 ° C
Rotation Motors	For LZM-120A+, theta rotational motion is available for PM fiber alignment.
PM Fiber Alignment Methods	• PAS (For PANDA and other PM fibers) • IPA (Interrelation Profile Alignment, applicable to almost all PM fibers. Three distinct IPA methods available.) • End-view • Power meter feedback (Requires polarizer and analyzer, as well as GPIB interface) • Manual • Other methods by PC control
End-View Observation and Alignment	Internal end-view system
Flexibility for Customer Design Input	Customizable platform
CO2 laser expected re-gas interval	Typically in excess of 2 years

State of the ARC

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