LZM -100

2 mm to 125 µm Splice

Advanced Adiabatic Tapering
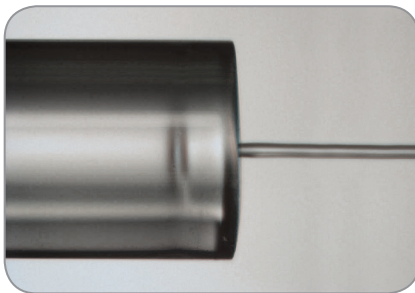

Ball Lens 320 µm with
125 Splice to 80 µm Fiber

LAZERMaster™

LZM-100

The LZM-100 LAZERMaster is a glass processing and splicing system that uses a CO_2 laser heat source to perform splicing, adiabatic tapering (to create MFAs or pump combiners), lensing, or other glass shaping operations with glass diameters of 2.3 mm or more. The high resolution optical analysis system works in conjunction with on-board firmware for fully automatic splicing, tapering and other glass shaping processes.
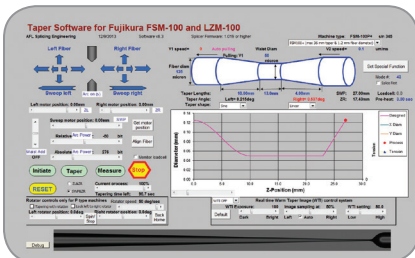
High precision glass processing is enabled by the intuitive and user-friendly on-board firmware (virtually identical to that of the Fujikura FSM-100 ARCMaster splicers). Operations may also be performed manually and by PC control. A SpliceLab PC control GUI is supplied with the LZM-100 to provide additional features, greater flexibility and finer control. The SpliceLab GUI is pre-installed on the All-in-one computer. Customers can also create proprietary PC control algorithms using a complete set of PC control commands.
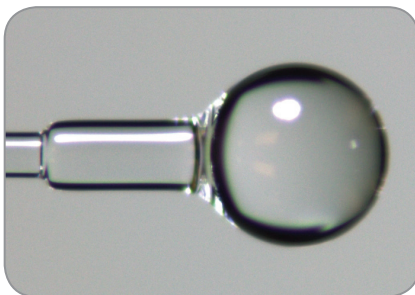
Features

- CO_2 laser heat source eliminates electrode or filament maintenance, provides extremely stable operation and greatly reduces the need for periodic calibration
- Automated laser beam diameter control to fine tune the size of the heating area
- An advanced configurable system capable of producing tapers, ball lenses, combiners, MFAs, glass shaping and splicing
- Excellent performance for dissimilar diameter fiber splicing
- Ultra high strength splicing
- Redundant automated laser safety features
- 2.3 mm maximum fiber diameter (larger fibers may be spliced manually)
- Long travel / high resolution Z motion for long adiabatic tapers
- Automatic operation by on-board LZM-100 splicer firmware, manual operation or operation by PC (PC and SpliceLab GUI included with the LZM-100 system)
- Intuitive SpliceLab PC GUI: Easy to understand, navigate and operate
- Complete set of PC command codes enables users to develop proprietary processes

Ordering Information

DESCRIPTION	ITEM NO.
LAZERMaster LZM-100 Glass Processing & Splicing System (Standard baseline LZM-100 system. Includes AC adapters & cords and SpliceLab PC software)	S015871
LAZERMaster LZM-100 (with dual theta motors)	S015872
All-in-one Computer (includes keyboard and mouse, monitor stand for mounting all-in-one computer. SpliceLab software pre-installed.) (required)	S015242
End-View Observation & Alignment Option	S015244
Side Table Work Surface Option (Work surface to provide additional area for accessories such as fiber preparation equipment. May be attached to the left or right side of the LZM-100 or both. Folds down against the side of the LZM-100 chassis when not needed or to allow easy movement through narrow doorways.)	S015247
Cylindrical Lens & Lens Holder (optional)	S015251
LZM-100 Training (USA)	S015867
LZM-100 Training (International)	S015868
Splicer V-Groove Cleaning Kit	S014397

Specifications

Fiber Heating and Splicing Method	CO_2 Laser
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 to meet specific user requirements
Typical Splice Loss	0.02 dB for SMF (ITU-T G.652)
Typical Splice Strength	>400 kpsi for SMF (ITU-T G.652) using appropriate fiber preparation equipment
Camera Field of View	2.7 mm
Fiber Observation Methods	• PAS (Profile Alignment System) via transverse fiber observation. • WSI (Warm Splice Image) and WTI (Warm Taper Image) • End-view observation (Optional)
Applicable Fiber Diameter	80 µm to 2300 µm for automatic alignment by PAS Larger diameter fibers 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" system
Fiber Handling	Fujikura FSM-100, FSM-45 and FSM-40 splicer fiber holders Custom fixtures to meet specific customer requirements
Alignment Methods	PAS (Profile Alignment System, automatic alignment by camera observation) Manual Other methods by PC control Power meter feedback via GPIB (Optional) End-view (Optional)
X/Y Alignment Resolution	0.1 µm
Maximum Z Travel Length	150 mm (both left and right Z units)
Z Travel Resolution	0.125 µm theoretical
Maximum Taper Length	130 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 (Optional 5 mm/sec)
Splicing Control	Internal firmware or operation by PC
Fiber Tapering & Glass Shaping Control	Internal firmware or operation by PC
PC Control	SpliceLab software will be provided Complete command set for PC control
PC Option	An all-in-one computer is required. Use of the SpliceLab software on a PC provides finer control and additional features compared to the LZM-100 internal firmware. Using another software application, the PC interface also allows for advanced maintenance functions such as the ability to confirm laser beam alignment, and align if required.
Interface Ports	USB 2.0 (For PC communications, data and image download, etc.) GPIB (Optional, for power meter feedback)
Electrical Power	100-240 VAC
Operating Conditions	15-40°C
Rotation Motors	Optional: Provides theta rotational motion for PM alignment for both left and right sides
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 (Optional) • Power meter feedback (Requires polarizer and analyzer, as well as optional GPIB interface) • Manual • Other methods by PC control
End-View Observation & Alignment	Optional internal end-view system

Preliminary Specifications, subject to revision and refinement

State of the ARC

www.AFLglobal.com or (800) 235-3423