Splicing and Glass Processing System

Fujikura

LZM-110M+ /110P+

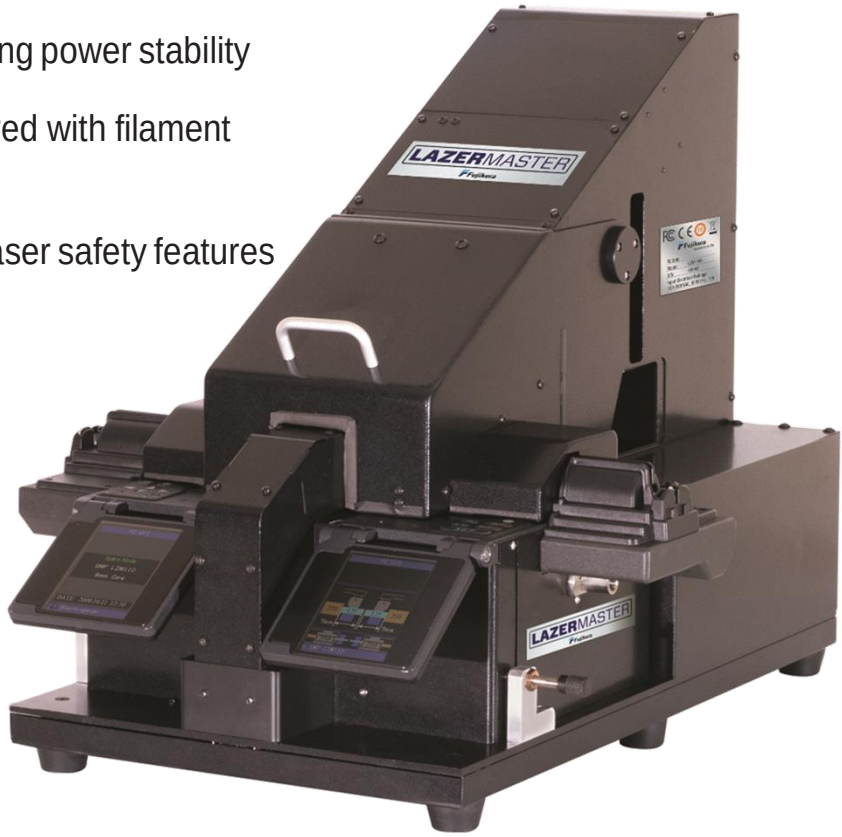
LAZERMaster™

Tremendous Capability for Production:

- Splices and glass processing of fibers with 80 um up to 2.3 mm diameter
- High resolution motion for precise control during splicing and glass processing operations
- Extensive library of applications which are transferable between the LZM and FSM family
- FPS PC GUI provides additional measurement capabilities & glass shaping control

CO_2 Laser Heat Source for Splicing & Glass Shaping:

- Very clean heat source: Absolutely no deposits on fiber surface as might occur with filaments or electrodes Provides extremely stable & repeatable operation with virtually no maintenance
- Substantially reduces maintenance & calibration requirements
- Proprietary feedback system ensures heating power stability
- No need for external process gas (as required with filament systems) or Vacuum systems
- Class 1 Laser with redundant automated laser safety features



Specifications and descriptions are subject to change without prior notice.

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Februar 2017

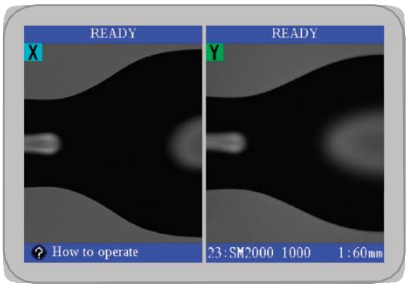
LZM-110M+ /110P+

LAZERMaster™

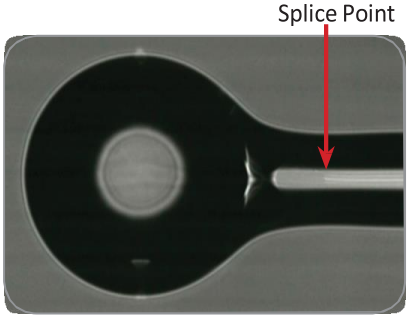
The LZM-110M+ /110P+ LAZERMaster is a splicing and glass processing system that uses a CO_2 laser heat source to perform splicing, tapering (to create MFAs), lensing, or other glass shaping operations with glass diameters of 2.3 mm. The high resolution optical analysis system works in conjunction with 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-110M+ /110P+ 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.

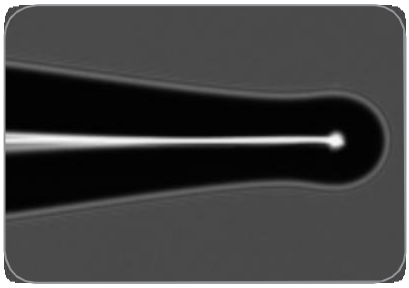
Table Top design



1 mm to 2 mm X-LDF Splice



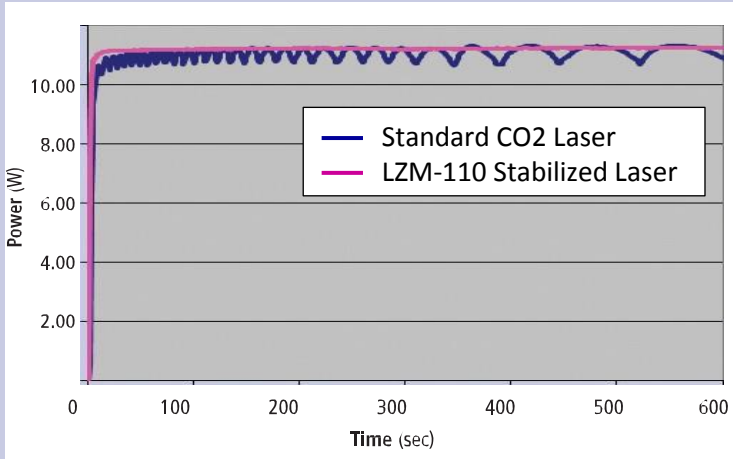
Coreless Ball Lens to Collimate SMF Fiber Output



Tapered Probe with Small Ball End

Clean & Stable Heating by CO_2 Laser

The LZM-110 LAZERMaster uses a CO_2 laser heat source to heat fibers, ensuring repeatable performance and low maintenance, and eliminating electrode or filament maintenance and instability. CO_2 laser heating also eliminates any deposits on the fiber surface that might occur from use of a filament or electrodes. The very clean and deposit-free fiber surface ensures reliable operation of very high power fiber lasers or power delivery systems.



Laser Power Stability

Typical CO_2 lasers have an output power fluctuation of +/- 5%. This produces inconsistent splicing results and may cause irregularity and ripple in a taper profile.

The LZM-110 utilizes proprietary (patent pending) closed-loop power stabilization techniques, resulting in power stability within 0.5%, as shown to left. This enables highly repeatable processes and very smooth taper profiles.

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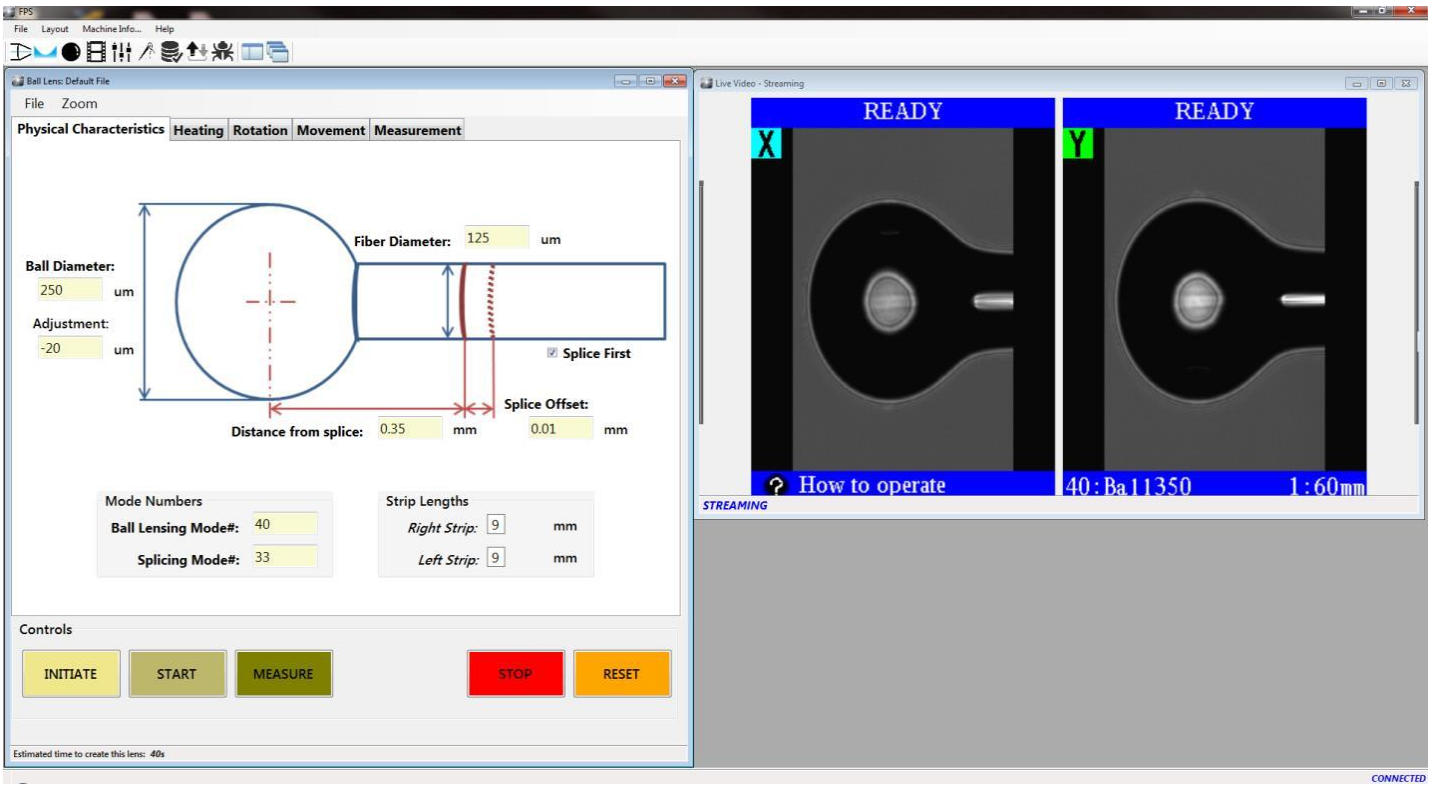
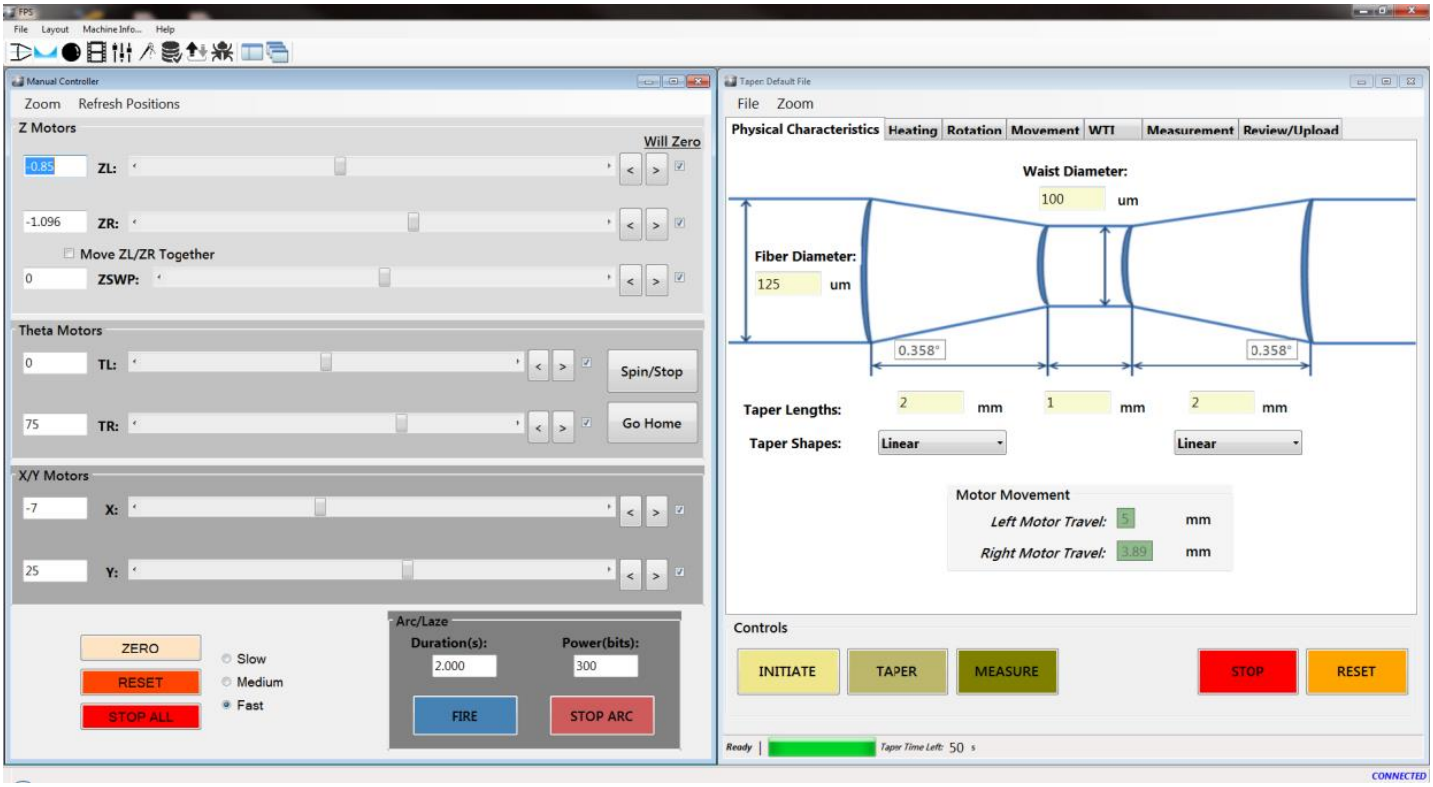
User-Friendly Graphical User Interface

Advanced Ball Lens Capability



Advanced Taper Capacity



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ORDERING INFORMATION

DESCRIPTION	ITEM NO.
LAZERMaster LZM-110M+ Glass Processing & Splicing System (Standard baseline LZM-110 system. Includes AC adapters & cords and FPS PC software)	S016411
LAZERMaster LZM-110P+ Glass Processing & Splicing System (Standard baseline LZM-110 system. Includes AC adapters & cords and FPS PC software)	S016413
All-in-one Computer (includes keyboard and mouse, monitor stand for mounting all-in-one computer. FPS software pre-installed.) (recommended)	S015242

SPECIFICATIONS

Fiber Heating and Splicing Method	CO_2 Laser
CO_2 Laser Power	30 W standard (Lasers with other power levels may be selected to meet customer requirements.)
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	250+ kpsi for SMF (ITU-T G.652) using appropriate fiber preparation equipment
Camera Field of View	2.5 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 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, & FSM-40 splicer fiber holders
Alignment Methods	4 methods for PM alignment: PAS (Profile Alignment System, automatic alignment by camera observation) Manual; Other methods by PC control; Power meter feedback via GPIB; End-view
Endless Theta Rotation	360 deg endless rotation with 110P+ model, angle resolution 0.1 deg (LZM-110P+ only)
X/Y Alignment Resolution	0.1 µm
Maximum Z Travel Length	36mm (both left and right Z units) as well as sweep
Z Travel Resolution	0.125 µm theoretical
Maximum Taper Length	36 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 & Glass Shaping Control	Internal firmware or operation by PC
PC Control	FPS software will be provided Complete command set for PC control
PC Option	All-in-one Computer is available as an option. 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 (for power meter feedback)
Electrical Power	100-240 VAC
Operating Conditions	15-30°C / 15-40°C
Rotation Motors	Optional (Provides theta rotational motion for PM fiber alignment. Available for both left & right fibers, or one side only depending upon customer requirements.)
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 & analyzer, as well as optional GPIB interface) • Manual • Other methods by PC control
End-View Observation & Alignment	Internal end-view system
Flexibility for Customer Design Input	Customizable platform

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