FoldGuard

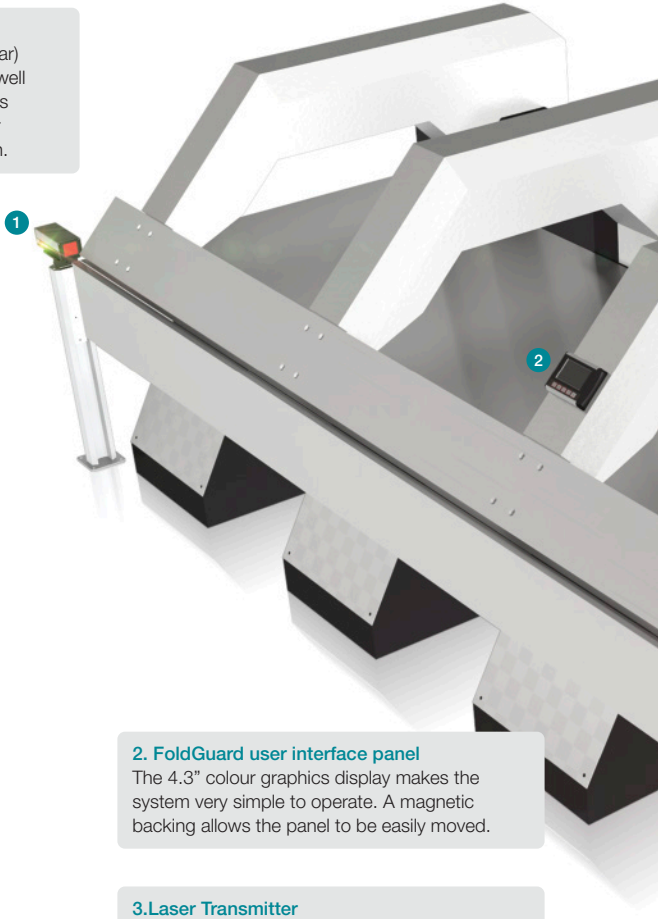
FOLDING MACHINE SAFETY
& GUARDING SYSTEM

lazersafe

FoldGuard

FoldGuard is a complete safety and guarding solution designed for folding machine applications. Available in both OEM and retrofit configurations, FoldGuard provides optical protection of the clamping operation, monitoring of machine performance plus management of additional machine safety elements.

1. Laser Receiver (RX)
Three sensing zones (front, middle and rear) protect the area forward of the clamp as well as the inside edge. Hemming Mode allows automatic blanking of the middle and rear sensing zones for fast hemming operation.



2. FoldGuard user interface panel
The 4.3" colour graphics display makes the system very simple to operate. A magnetic backing allows the panel to be easily moved.

3.Laser Transmitter
As the clamp closes, the sensors are progressively muted while monitoring the position of the clamp. The system provides optical protection until the clamp opening is 6mm.

4. Automatic monitoring
Monitoring of clamp position and stopping performance (overrun).

5. Additional monitoring (optional)
Monitoring of emergency stop, foot pedals, light curtains, interlock switches, area scanners, safety mats, emergency kick-bar, etc.

6. Floor mounted brackets
Brackets fixed to the floor for simple one time set-up. No additional adjustment is required.

FoldGuard technology

Optical clamp protection

The FoldGuard laser transmitter and receiver are positioned either side of the machine on floor mounted brackets. A continuous block laser field protects the zone between the clamp to protect operators as they hold the material while it is being clamped. If an obstruction is detected the clamp motion is automatically stopped. By providing this extra protection FoldGuard enables the machine to operate without the need for a safety stop on each cycle for faster operation. A special hemming mode also enables parts to be formed safety without unnecessary safety stops.

Automatic monitoring

During operation FoldGuard automatically monitors clamp position, movement and stopping performance. Every time the clamp stops, the system automatically monitors the stopping distance (overrun) to make sure the clamp has stopped within a safe distance.

The system can also detect failures in the hydraulic and electrical systems associated with control of the clamping operation and triggers an emergency stop if a fault condition is detected.

FoldGuard user interface panel

The FoldGuard panel displays system and machine status in real-time and provides the operator with simple to follow instructions and messages making the system very simple to operate. The active status of the optical protection is clearly displayed and the operator can quickly change guarding modes with the press of a button.

The panel features a magnetic backing allowing it to be placed on the front of the machine and within easy reach and view of the operator.

SmartLink interface

SmartLink is an advanced communication link that seamlessly integrates safety and guarding functions of the FoldGuard system with the machine's CNC system to further enhance the operation, functionality, performance and effciency of the machine.

SmartLink is available with the OEM configuration and can be custom integrated with proprietary CNC systems by the folding machine manufacturer.

Simple one-time set-up

During installation the laser transmitter and receiver are easily aligned with the clamp. The floor mounted brackets are fully adjustable to suit different height machines and are quick and simple to set-up.

Folding machine manufacturers have the option to customise mounting brackets that are fixed to the machine frame so FoldGuard can be factory fitted and easily transported with the machine.

Additional machine monitoring

FoldGuard provides optional monitoring of machine safety elements such as emergency stop buttons, foot pedal emergency stop contacts and the kick bar emergency stop function.

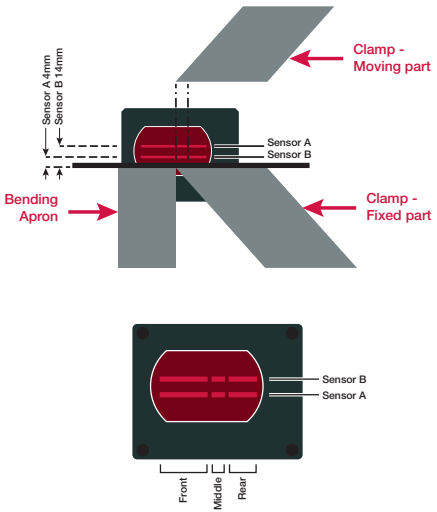
Folding machine manufacturers have the added option to monitor additional safety elements including light curtains, laser area scanners, safety mats and interlock switches plus the flexibility to customise machine safety and control functions.

How it works

Optical protection

The laser field is processed by the receiver and divided into two rows of three continuous zones to detect obstructions in front of and inside the clamping area.

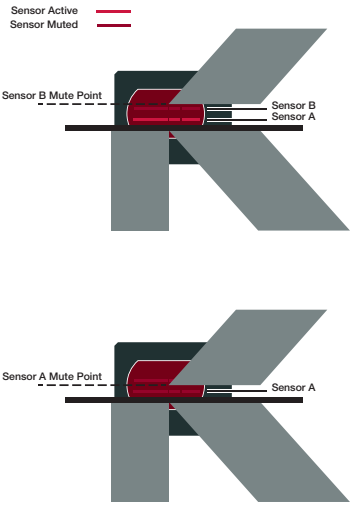
The front zone provides protection forward of the clamp edge while the middle and rear zones protect the area just inside the front edge of the clamp. The protective zones are independently and automatically muted to suit flat material clamping and hemming operations.



Muting

Muting temporarily deactivates optical protection just before the clamp makes contact with the material, providing safe operation without the need for a safety stop on every cycle. On start-up FoldGuard automatically determines the mute point by detecting the clamp position. During operation optical protection is automatically muted when the clamp opening is 6mm, reducing the chance of an operator's fingers entering this small space.

FoldGuard automatically monitors the clamp position during operation so muting can only occur when the clamp is detected at the correct position above the material.



Operating modes

FoldGuard features guarding modes for both flat sheet clamping and hemming operations. At the press of a button simply select a mode that best suits the part.

Normal Mode

In Normal Mode all sensors are active allowing the clamp to close safely without a safety stop. If any sensor is blocked the clamp is automatically stopped. If any sensor remains blocked then the clamp can continue to close however the system will force a safety stop requiring the operator to press the pedal again before the material can be clamped.

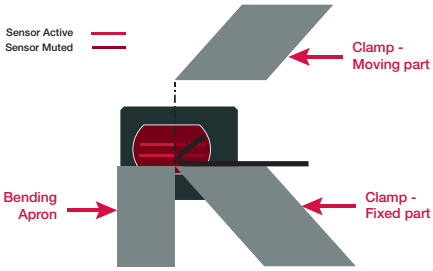
Safety stop Mode

As an option the machine operator or supervisor can manually select safety stop mode for added protection. On every clamp cycle FoldGuard will force a safety stop whether the sensors are clear or blocked.

Hemming Mode

Hemming Mode is designed to allow parts with a hem to be formed safely without a safety stop. When hemming mode is selected all sensors are active. When the middle or rear sensors detect a hem for the first time the system displays an alert to the operator. The operator must press the foot pedal a second time to confirm the presence of the hem before the system automatically blanks the middle and rear sensors enabling the hem to be formed without a safety stop.

Hemming Mode remains active so long as a hem is detected by the sensors every 30 seconds of machine operation. If a hems are no longer being formed or the machine is left idle then the system automatically rearms all sensors.



LAZER SAFE - PERFORMANCE WITHOUT COMPROMISE

Product specifications

	OEM Configuration	Retrofit Configuration
Controller		
Hardware	CE Certified Category 4 Safety Controller with solid state outputs and encoder feedback system	CE Certified Category 4 Safety Controller with integrated force guided relays and encoder feedback system
Software	CE Certified Kernel Software with application software interface	CE Certified Kernel Software with application software interface
Technology	SmartLink	
Additional features		
Monitoring of emergency stop buttons, pedal e-stops and kick bar e-stop	●	●
Monitoring of additional safety elements (light curtains, laser area scanners, safety mats, interlock switches, etc.)*	●	
Customisable machine safety and control functions*	●	
Laser transmitter / receiver		
Laser transmitter	CLASS 1 Block laser	CLASS 1 Block laser
Receiver	Multi-sensor photocell receiver	Multi-sensor photocell receiver
Maximum recommended optical range	8 metres / 26 feet	8 metres / 26 feet
Minimum object detection resolution	4mm	4mm
Connector type	M12 8 pin	M12 8 pin
Integrated status LEDs	Transmitter status (power / laser A) Receiver status (power / front/middle/rear sensors)	Transmitter status (power / laser A) Receiver status (power / front/middle/rear sensors)
User interface		
CNC Embedded SmartLink Interface	●	
4.3" widescreen colour graphics display	Optional	●
Mounting brackets		
Vertical adjustment range	970mm to 1170mm	970mm to 1170mm
Horizontal adjustment range	40mm	40mm

** Requires SmartLink interface*

Sales and installation

FoldGuard is available supplied and installed from selected Lazer Safe Retrofit Dealers, the original folding machine manufacturer and participating machinery dealers.

For your nearest Lazer Safe Retrofit Dealer visit www.lazersafe.com.

Copyright
The contents of this brochure are subject to copyright and must not be duplicated, reproduced or communicated without the prior written consent of Lazer Safe.

Disclaimer
While every reasonable effort is made to ensure that the information presented in this brochure is accurate and current at the time of publication, Lazer Safe does not make any guarantee or warranty of accuracy of the information provided. Lazer Safe reserves the right to make changes at any time and without notice. Lazer Safe does not assume any liability for the accuracy of information presented or for any subsequent loss or damage suffered where you rely on or use the information contained within this brochure.

Trademarks
The following trademarks are the property of Lazer Safe and must not be duplicated, reproduced or communicated without the prior written consent of Lazer Safe;

Lazer Safe, PCSS, PCSS-A, LZS-LG, LZS-LG-HS, LZS-004, LZS-004-HS, LZS-005, IRIS, IRIS Plus, RapidBend, RapidBend Plus, RapidBend Ultimate, FlexSpeed, FlexSpeed Plus, SmartLink, BendShield, BendShield Plus, AutoSense, AutoSense Plus, Sentinel, Sentinel Plus, Defender, Defender Plus, FoldGuard, PressGuard, LazerGuard.

Patents
Lazer Safe products are subject to patents granted or applied for in various global territories.

LS-MKT-M-009 v2

AXIOM:: 5731

Performance without compromise.™

27 Action Road, Malaga WA 6090, Australia
PO Box 2368, Malaga WA 6944, Australia
+61 8 9249 4388 +61 8 9249 6011 info@lazersafe.com
www.lazersafe.com