Sentinel

PRESS BRAKE
GUARDING SYSTEM

lazersafe

Sentinel

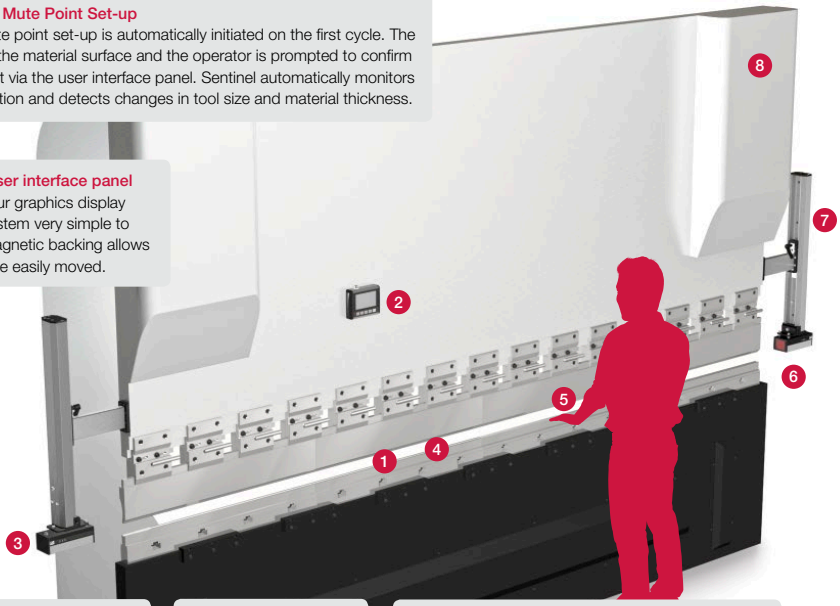
Sentinel is an advanced press brake guarding system designed for retrofit applications. Sentinel provides the highest level of operator protection while maintaining machine productivity and performance.

Sentinel laser protection

The Sentinel laser transmitter and receiver are mounted to the upper beam of the press brake. A continuous dual laser field protects the zone directly below the punch tip allowing the operator to hold the work piece as the tools close at high speed. If an obstruction is detected the machine is automatically stopped.

1. Automatic Mute Point Set-up
The 6mm mute point set-up is automatically initiated on the first cycle. The laser detects the material surface and the operator is prompted to confirm the mute point via the user interface panel. Sentinel automatically monitors the mute position and detects changes in tool size and material thickness.

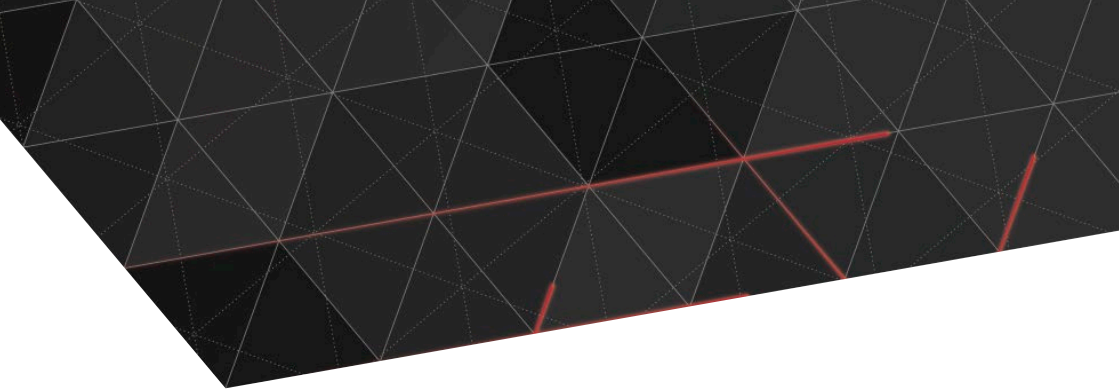
2. Sentinel user interface panel
The 4.3" colour graphics display makes the system very simple to operate. A magnetic backing allows the panel to be easily moved.



3. Laser Transmitter (TX)
As the tools close in high speed the lasers are progressively muted while machine deceleration and speed is monitored. The system provides optical protection until the tool opening is 6mm.

4. RapidBend
RapidBend technology maintains machine productivity by enabling the tools to close in high speed until the opening is only 6mm.

5. Close Proximity Protection
Sentinel enables the operator unrestricted access to the tooling area. The operator can hold the work piece as close as 20mm from the bend line and operate the machine safely in high speed. This increases productivity and reduces operator fatigue – no more stepping in and out of the tool area as with traditional light curtains.



This close proximity protection allows the operator unrestricted access to the point of operation for increased productivity and unlike traditional light curtains, reduces fatigue by enabling the operator to remain standing in the same position.

8. AutoSense
AutoSense technology automatically monitors machine performance in real time.

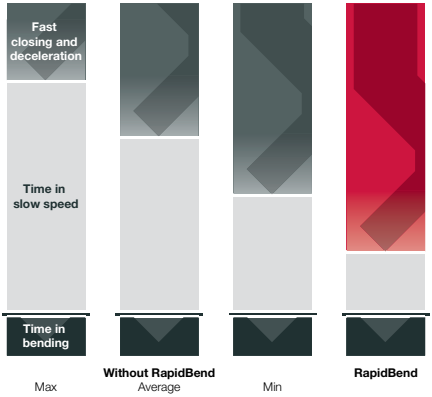
7. Quick adjust brackets
The TX and RX can be quickly moved and locked clear during tool change, are very easily adjusted and highly tolerant to machine vibration.

6. Laser Receiver (RX)
The RX features a wide reception zone to eliminate the need for precise manual adjustment after tool change and is also highly tolerant to machine vibration. Integrated status LEDs make setup and adjustment very simple.

Sentinel technology

Our patented technology is designed to enhance operator protection while maintaining machine productivity and performance.

RapidBend technology employs a patented progressive muting process that enables the press brake to close safely at high speed until the tool opening is only 6mm. This reduces the slow speed travel distance to enhance machine productivity. RapidBend is compatible with most synchronised CNC press brakes* and in comparison to other light or laser based systems, RapidBend can reduce machine cycle time by up to two seconds per cycle. This represents a significant saving in operating time and cost.



**For retrofit applications RapidBend compatibility is dependent on machine type. Results may vary with older or conventional type machines.*

AutoSense is an automatic monitoring technology that tracks machine operation and performance in real time. AutoSense automatically monitors control commands, motion, direction, speed and stopping performance to maintain a high level of machine and operator protection. AutoSense also guarantees compliance with international safety standards that mandate automatic monitoring of machine overrun and safe speed.

Sentinel user interface panel

The Sentinel panel displays system and machine status in real time and provides the operator with simple to follow instructions and messages making the system very easy 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 within easy reach and view of the operator.

Quick adjust brackets

The mounting bracket system attaches the laser transmitter and receiver to the press brake. The brackets are manufactured from an extruded high tensile alloy for rigidity and tolerance to machine vibration. Linear rails and bearings provide precision vertical adjustment of the laser transmitter and receiver. During tool change the transmitter and receiver are locked clear allowing the tools to be easily removed from the ends of the machine.

After tool change the transmitter and receiver are quickly moved back into position. The receiver status LEDs provide a clear indication of when the system is aligned so the tool change process is very simple and takes only a matter of seconds.

Dual guarding support - the best of both worlds.

In addition to laser guarding, Sentinel enables connection of third party light curtains for the ultimate flexibility. For bending operations where light curtains are more suitable (eg. multi-height tooling), the operator can simply switch from laser protection to light curtain protection.

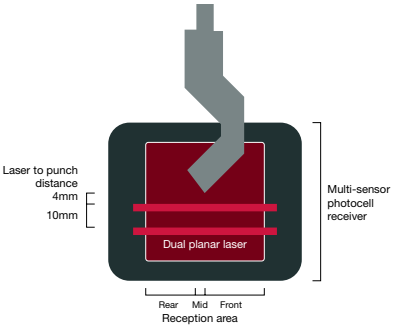
Additional machine monitoring

Sentinel provides optional monitoring of additional machine safety elements including emergency stop buttons plus side and rear gate interlock switches with real-time status displayed on the user interface panel.

How it works

The laser field is processed by the receiver and divided into three continuous zones to detect obstructions entering from the front, sides and rear of the tool area.

The front zone provides protection forward of the tool while the middle zone protects the area just behind the tip of the punch. The rear zone provides additional protection for the open gaps created when segmented tooling is used. The protective zones are independently and automatically muted to suit different shape work pieces allowing parts to be formed safely at high speed to achieve maximum productivity.



Muting

Muting temporarily deactivates optical protection just before the punch makes contact with the material allowing the bend to be completed. On start-up Sentinel automatically determines the mute point by detecting the material position. During operation the optical protection is automatically muted when the tool opening is 6mm, reducing the chance of an operator's fingers or hands entering this small space between the punch and material.

Sentinel automatically monitors the material position on every bend so changes in material thickness or tool size are detected and the machine automatically stopped. After a tool or material change the operator simply initiates a new mute point set-up cycle with the press of a button.

Operating modes

Sentinel features a range of modes to suit different shape and profile work pieces. At the press of a button, simply select a mode that best suits each bend job to achieve the best level of productivity and performance.

Normal Mode
In Normal Mode all sensors are active, allowing the tools to close safely at high speed. If any sensor is blocked, the machine is automatically stopped. If any sensor remains blocked then the bend can be completed at 10mm/s safe speed.

Tray Mode
Tray Mode is designed for bending tray or box shaped work pieces where the side flanges block the front or rear sensors. In Tray Mode all sensors are active and the machine is stopped if a side flange is detected. The operator presses the pedal again to confirm the presence of the side flange then the system automatically blanks the front and rear sensors and the bend continues at high speed.

Mute Stop Mode
Ideal for forming parts with side flanges that block the entire sensing zone. The tools close at high speed and stop automatically at the mute point allowing the operator to simply insert the work piece then press the pedal to complete the bend.

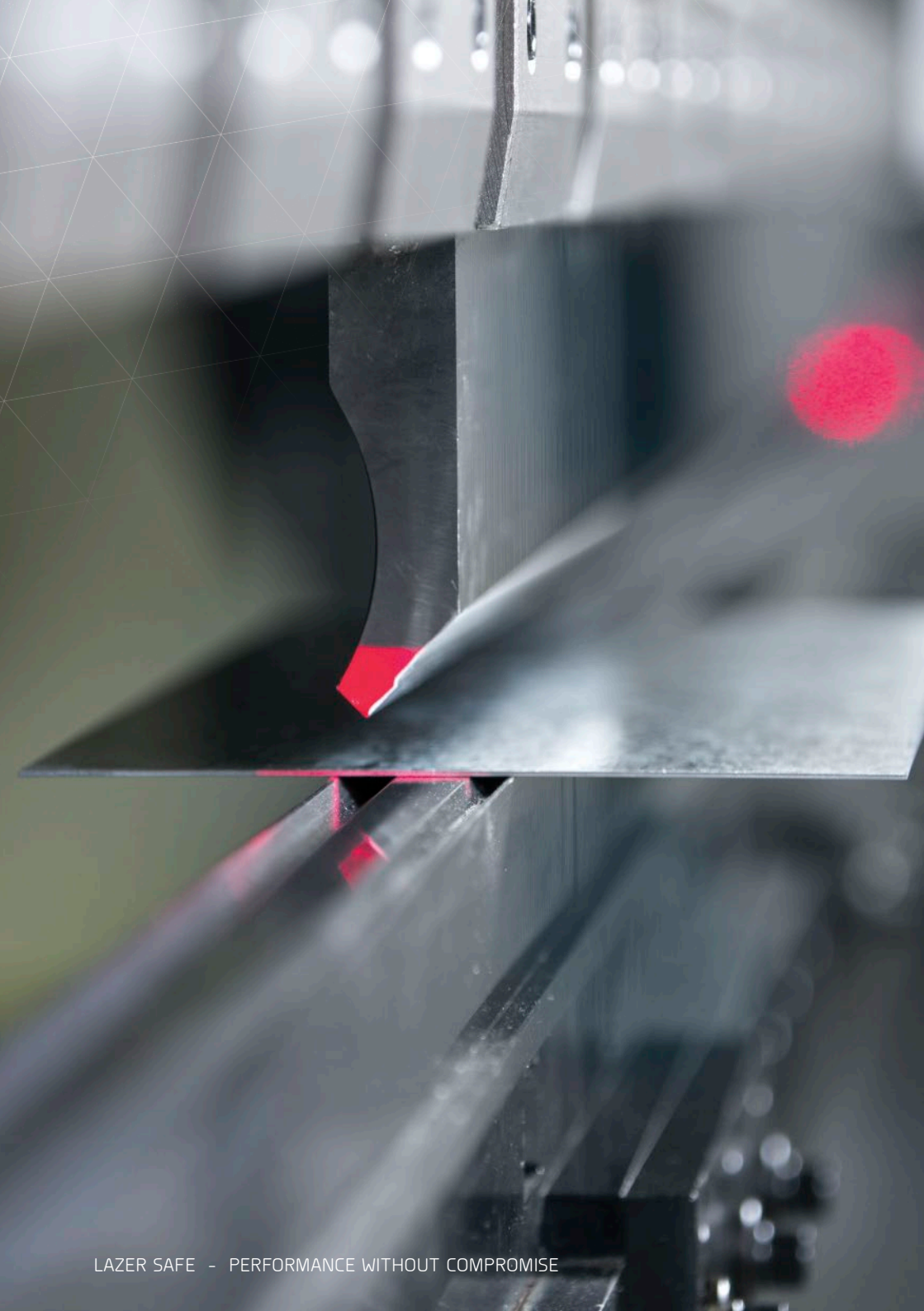
Back Gauge Mode
Back Gauge Mode is designed for bend cycles where the back gauge fingers are positioned very close to the bend line and detected by the rear sensor.

To maintain protection while avoiding unnecessary interference the rear sensor is automatically blanked just above the back gauge fingers so the bend can be completed without stopping.

Field Muted Mode
In Field Muted Mode the optical protection is turned off and closing speed restricted to 10mm/s safe speed. Field Muted Mode is ideal for bending operations where the laser transmitter or receiver must be moved clear to accommodate work pieces that extend past the ends of the machine bed.

Tool Set-up Mode
Traditional guarding systems can interfere with machine tool set-up and referencing that can lead to longer set-up times or the need to bypass the guarding system entirely. Sentinel Tool Set-up Mode eliminates interference and enables tool set-up and referencing to be performed quickly and easily.

Light Curtain Mode (optional)
Sentinel allows the operator to set the material position then automatically calculates the light curtain mute point at a 6mm tool opening. During operation Sentinel automatically monitors machine stopping time whenever the light curtain is interrupted and on every machine stop. Sentinel also provides flexibility with safe speed operation. If the light curtain is interrupted when the tool opening is greater than 6mm then the bend can be completed at 10mm/s safe speed.



LAZER SAFE - PERFORMANCE WITHOUT COMPROMISE

Product specifications

	Sentinel Press Brake Guarding System
Controller	
Hardware	CE Certified Category 4 Safety Controller with integrated force guided relays and encoder feedback system
Software	CE Certified Kernel Software with application software interface
Technology	RapidBend / AutoSense
Laser transmitter / receiver	
Laser transmitter	CLASS 1 Dual planar laser
Receiver	Multi-sensor photocell receiver
Optical range	14 metres
Object detection resolution	4mm
Connector type	M12 8 pin
Tool compatibility	V tools and non standard tools
Integrated status LEDs	Transmitter status (power / laser A/B) Receiver status (power / front/middle/rear sensors)
User interface panel	
Display	4.3” widescreen colour graphics display
Connector type	M12 8 pin
Mounting brackets	
Vertical bracket length	700mm (other lengths available on request)
Vertical adjustment range	530mm (suits punch height up to 450mm. Other lengths available on request)
Horizontal adjustment range	40mm

Certification and standards compliance

Sentinel hardware and software is CE Certified and compliant with all international press brake safety standards including EN12622, ANSI B11.3-2012, CSA Z142-10 and NR12.

Sales and installation

Sentinel is available supplied and installed from Lazer Safe Retrofit Dealers, the original press brake manufacturer and participating machinery dealers.

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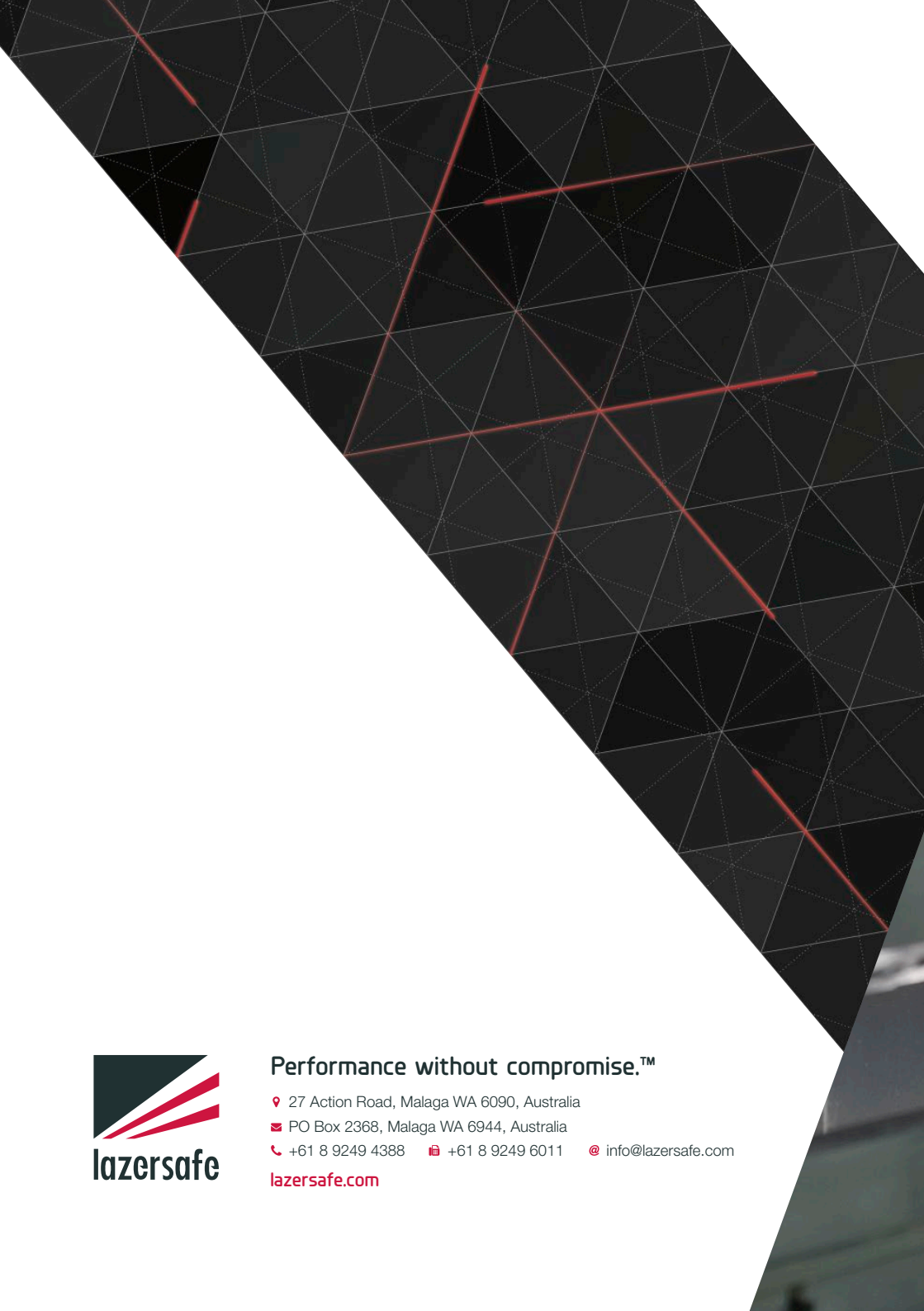

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Performance without compromise.™

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

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