



# SAFETY LASER SCANNERS BUYING GUIDE

## WHAT DO THEY DO?

Safety laser scanners use infrared laser beams to monitor defined zones for intrusion, providing advanced area safety control in industrial environments. They detect presence in hazardous areas and, with a safety controller, will send a stop signal to halt dangerous machinery. They provide flexible, configurable protection for both people and equipment.

### Key Functions

- **Zone Monitoring:** Scanners continuously track predetermined detection zones to identify entry and trigger protective responses.
  - » **Presence Detection:** Infrared beams sense people or objects entering dangerous areas, enabling immediate stop or warning signals.
  - » **Configurable Fields:** Users can customize detection field shapes and sizes to match machine layouts or process requirements.
  - » **Multiple Zone Support:** Allows creation of warning and safety zones, activating different responses depending on intrusion level.
- **High-Speed Response:** Units process intrusion data, as quickly as 62ms, and signal connected safety controllers to minimize accident risk.

## Topics

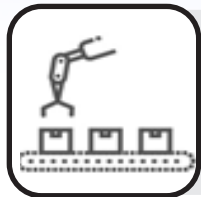
- » [What do they do?](#)
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- **Flexible Mounting:** Adaptable positioning for optimal coverage and reduced blind spots using adjustable brackets. The most popular mounts are horizontal and vertical.
- **Compact Footprint:** Safety laser scanners fit into tight spaces while delivering full safety functionality.
- **Automatic Restart Lockout:** Ensures operators manually reset systems after an event to avoid unexpected motion.
- **Dust/Light Compensation:** Sensors adjust detection sensitivity to maintain reliability in diverse industrial conditions.
- **Non-Contact Safety:** Uses laser scanning instead of physical barriers, allowing unobstructed workflow while maintaining protection.
- **Versatile Integration:** Easily connects to safety PLCs or relay modules for coordinated machine control.

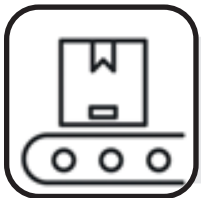
By combining precise infrared scanning with configurable zones, safety laser scanners give users a powerful tool for safeguarding personnel and equipment. They adapt to changing layouts, maintain workflow efficiency, and meet stringent safety standards in automated operations.

# APPLICATIONS

Safety laser scanners enable flexible, non-contact safeguarding across a range of industrial settings, protecting personnel and assets while allowing efficient workflow. They can be configured for complex zones and dynamic machine operations.



**Automated Work Cells:** In robotic welding or assembly cells, scanners monitor access zones. If someone enters the hazard area, it sends a stop signal to the safety control system, bringing the machine to a safe state. This reduces risk without physical barriers.



**Material Handling Lines:** On conveyor systems, scanners detect people or objects invading predefined danger zones, stopping equipment before contact occurs and avoiding package, product, or machinery damage.



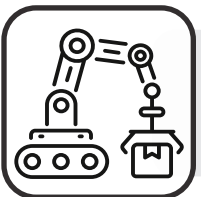
**AGV Collision Avoidance:** Autonomous guided vehicles use scanners to sense obstacles in travel paths, slowing or stopping as needed. This supports safe navigation in dynamic industrial environments.



**Packaging Equipment:** High-speed packaging machinery benefits from scanners guarding infeed and outfeed areas. Operators can feed materials safely while hazardous motion is halted if zones are breached.



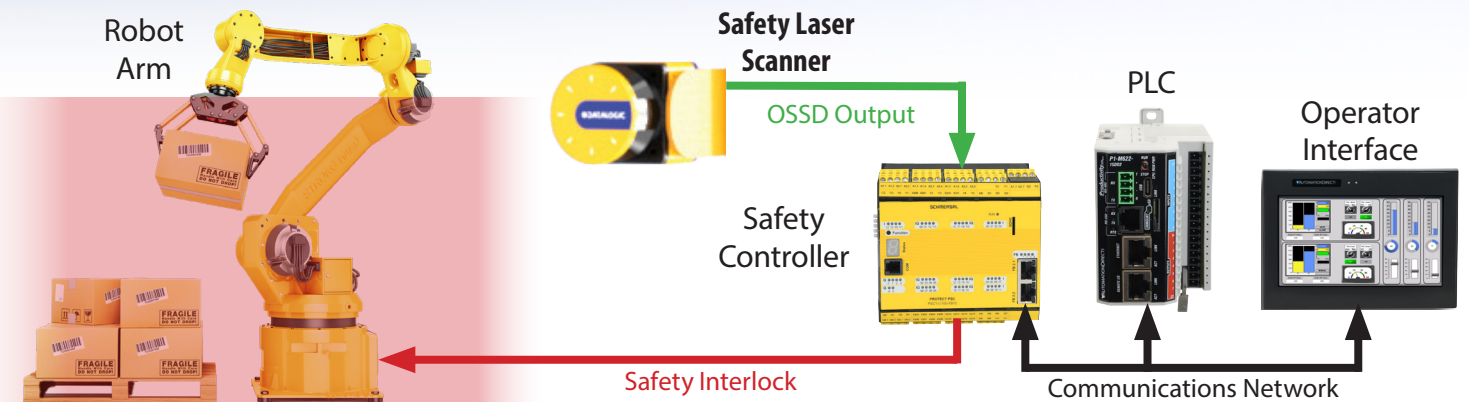
**Loading Dock Safety:** At docks, scanners detect entry into forklift or truck loading zones. They can trigger alarms or stop equipment, improving visibility and preventing accidental collisions.



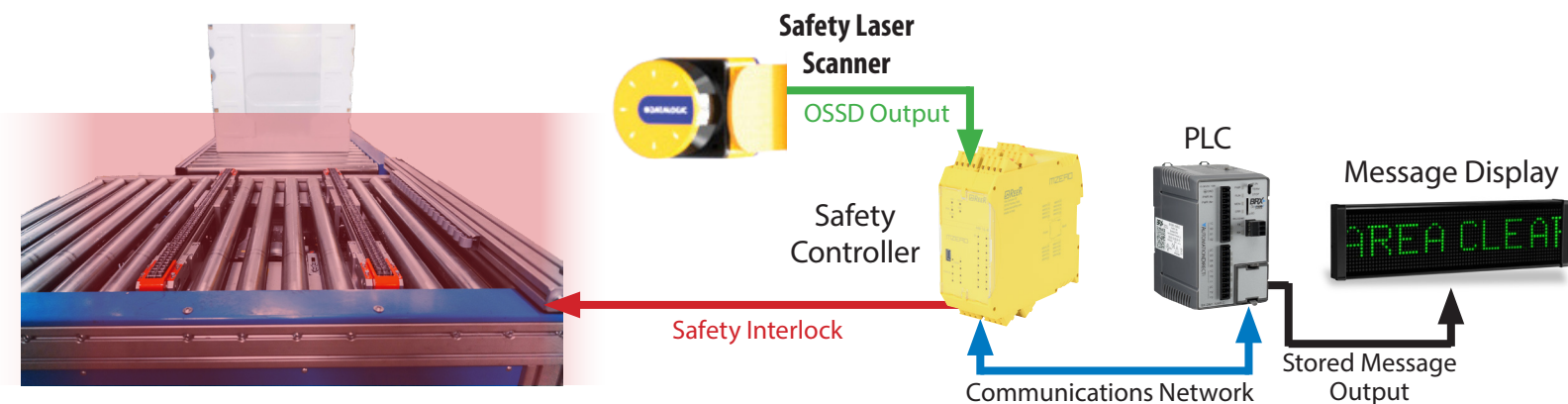
**Palletizing Areas:** Scanners in palletizing cells monitor both robotic arms and human presence, ensuring personnel approaching the area are detected quickly, and operations pause before contact.

# APPLICATION EXAMPLES

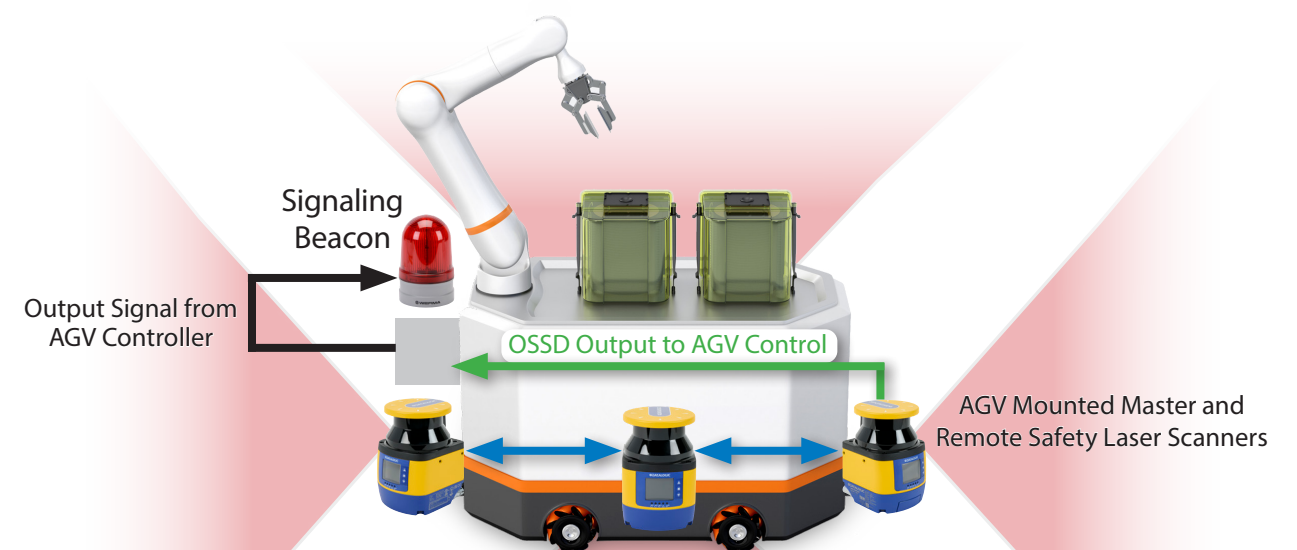
- **Robot Workcell Monitoring:** Safety laser scanners, such as the SLS-SA3-08, ensure presence detection in hazardous zones. If any person or object obstructs the monitored safety zone, a signal is sent to the safety control system to put the machine into a safe state.



- **Automated Conveyor Guarding:** An SLS-SA5-08 safety laser scanner prevents accidents by monitoring load transfer points. The scanner halts motion when unauthorized access is detected.



- **Material Handling Vehicle Safety:** Mounted units protect areas requiring flexible coverage, such as AGVs. Scanners slow or stop vehicles when obstacles or workers are detected in navigational paths.



## HOW TO CHOOSE

Selecting the right safety laser scanner ensures effective personnel protection and smooth production flow. Focus on detection range, protective field shape, environmental durability, and compatibility with mounting hardware and spare parts.

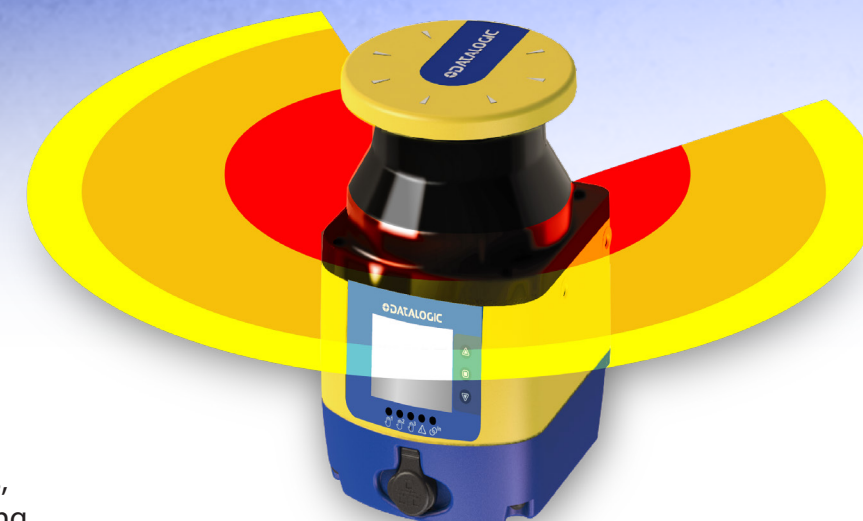
- 1. Detection Range:** Match the maximum sensing distance to the application area, ensuring the scanner can cover all hazard zones without blind spots.
- 2. Protective Field Shape:** Choose an installation location and verify that the laser scanner has direct line of sight for all areas. Objects like posts or bollards will impact what the scanner can see.
- 3. Angle of Coverage:** Determine the smallest size that needs to be detected at the furthest distance away from the scanner. The smaller the scanning angle, the further away it can detect a small object.
- 4. Resolution Settings:** Select a resolution that distinguishes between personnel and small obstacles, minimizing false triggers in busy work zones.
- 5. Response Time:** Ensure the unit's reaction speed matches process safety requirements to quickly halt dangerous motion.
- 6. Mounting Options:** Installation needs to align with the equipment frame for secure, vibration-resistant installation.
- 7. Environmental Resistance:** Confirm scanner housing resists dust, moisture, and temperature extremes for reliable operation.
- 8. Zone Switching:** Select units supporting multiple detection zones or dynamic workflows.
- 9. Maintenance Ease:** Opt for models with accessible window replacement and simple calibration to reduce downtime.
- 10. Power Requirements:** Verify supply voltage matches plant standards, avoiding costly adapters or power conditioning.
- 11. I/O Requirements:** Select units that will fulfill the required number of inputs and outputs.
- 12. Size Constraints:** Choose compact models for limited spaces without sacrificing detection range or performance.
- 13. Diagnostic Features:** Prefer units with built-in status indicators or software diagnostics for quick troubleshooting.














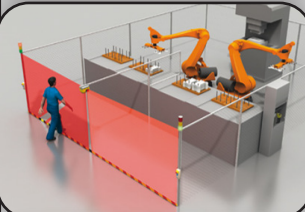










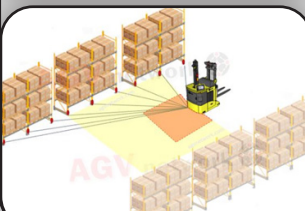


## ENVIRONMENTAL CONSIDERATIONS

Proper environmental planning ensures safety laser scanners deliver reliable protection, minimize downtime, and extend life cycle in demanding industrial settings.




- 1. Temperature Range:** Confirm the scanner's operating limits match ambient conditions, preventing performance degradation during seasonal or process heat variations.
- 2. Moisture Protection:** Select units with appropriate IP ratings to resist humidity, wash-down sprays, and condensation buildup.
- 3. Dust Resistance:** Ensure housing seals meet site particulate levels, avoiding sensor interference and premature wear.
- 4. Vibration Tolerance:** Evaluate mechanical robustness for mounting near heavy machinery or conveyors with continuous movement.
- 5. Shock Resistance:** Choose hardware capable of absorbing occasional impacts without affecting alignment or function.
- 6. Mounting Location:** Place scanners to avoid direct exposure to environmental hazards while maintaining detection coverage and ensuring operators won't use the scanner as a step.
- 7. Corrosion Resistance:** Prefer materials and finishes suitable for chemical exposure common in industrial environments.
- 8. UV Exposure:** Assess potential sunlight or UV lamp impact on housing and optics over long-term operation.
- 9. Electrical Noise:** Position and route cables to scanners away from high interference sources to keep signal integrity.
- 10. Cable Routing:** Maintain cable integrity through protective conduits to guard against oils, solvents, or mechanical damage.
- 11. Ingress Rating Verification:** Match IP rating to installation area's cleaning practices and airborne contaminant levels.
- 12. Heat Sources:** Avoid placing scanners adjacent to radiators, ovens, or hot processes to prevent continual heat stress.
- 13. Cold Conditions:** Consider heaters or enclosing protected locations for installations in extremely cold or outdoor environments to maintain sensor accuracy.
- 14. Airflow Management:** Prevent drafts from altering detection performance in dusty locations.
- 15. Maintenance Access:** Provide clearance for cleaning, inspection, and replacement in hostile environments.

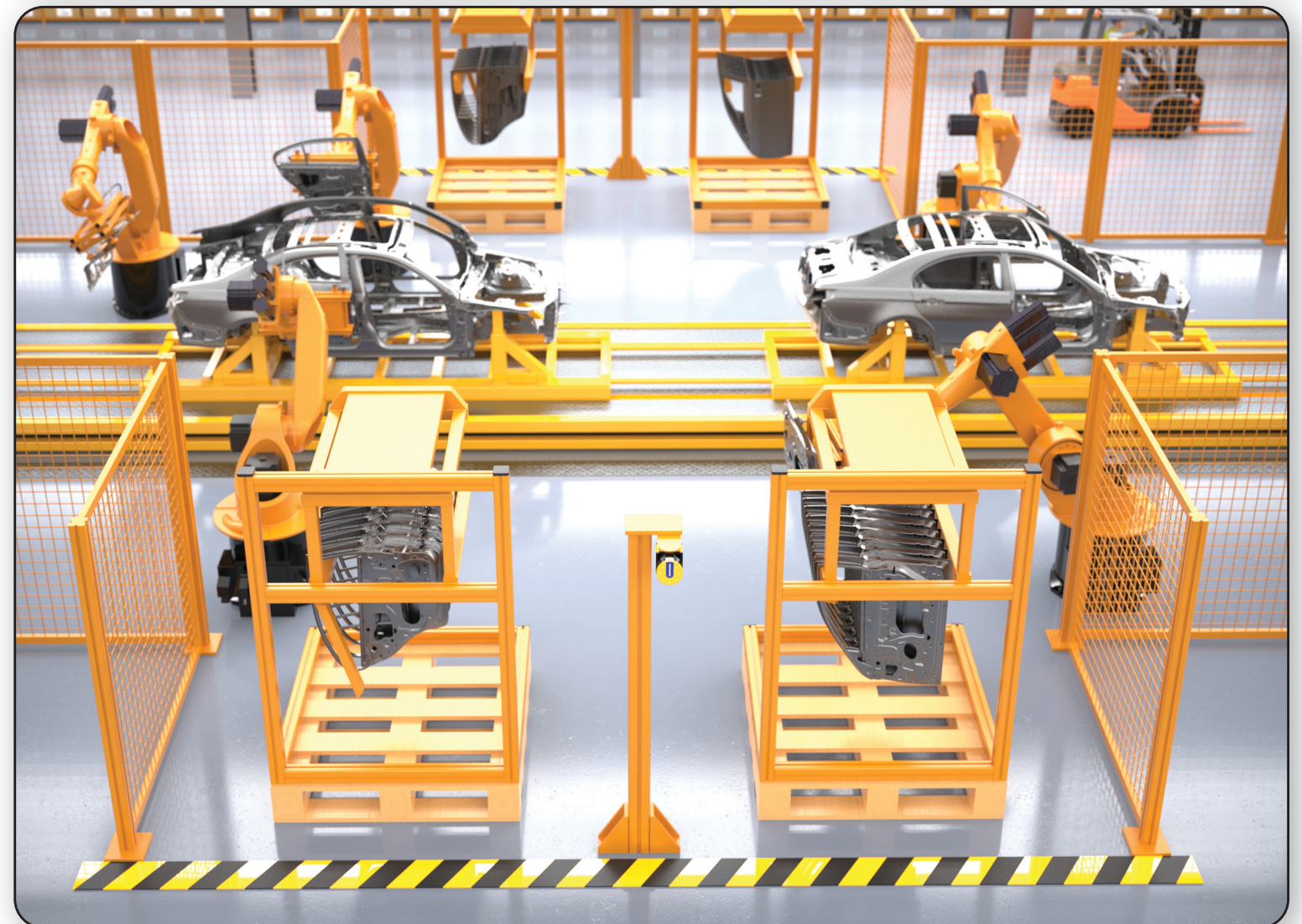


# APPLICATION SELECTION GUIDE

Application		 SLS-SA x-08	 SLS-Mx-0812-E	 SLS-Mx-1708-E
	Simple protection for horizontal static applications, such as presses, assembly machines, or manufacturing lines	 <b>EXCELLENT</b>	 <b>GOOD</b>	 <b>GOOD</b>
	Simple protection for vertical static applications, such as presses, assembly machines, pick & place, or manufacturing lines	 <b>EXCELLENT</b>	 <b>EXCELLENT</b>	 <b>GOOD</b>
	Simple protection for dynamic applications, such as AGVs	 <b>GOOD</b>	 <b>EXCELLENT</b>	 <b>GOOD</b>
	Complex and multiple zone protection for horizontal or vertical static applications, such as assembly machines or robot cells	 <b>MARGINAL</b>	 <b>EXCELLENT</b>	 <b>EXCELLENT</b>
	Complex protection shapes or multiple protection areas for dynamic applications, such as AGVs	 <b>UNSUITABLE</b>	 <b>EXCELLENT</b>	 <b>EXCELLENT</b>
	Multiple coverage areas needed or frequent area switching due to a complex path for dynamic applications, such as AGVs	 <b>UNSUITABLE</b>	 <b>GOOD</b>	 <b>EXCELLENT</b>
	Direct navigation or Simultaneous Localization And Mapping (SLAM) functions for applications such as highly complex AGVs	 <b>MARGINAL</b>	 <b>EXCELLENT</b>	 <b>EXCELLENT</b>

# FEATURE SELECTION GUIDE

Distinctive Feature	 SLS-SA x-08	 SLS-Mx-0812-E	 SLS-Mx-1708-E
Fast Replacement	No	Yes	Yes
Master / Remote	No	Yes	Yes
Connectors	M12-8p Pigtail	M12-8p or M12-12p	M12-17p and/or M12-8p
I/O available (dedicated)	5	5 with M12-8p 7 with M12-12p	10 with M12-17p 18 with M12-17p and M12-8p
Zone Set Max	6	3 with M12-8p 10 with M12-12p	20 with M12-17p 70 with M12-17p and M12-8p
Simultaneous Safety Area Max	1	1 with M12-8p 2 with M12-12p	3





## Protect dangerous machine access points with safety laser scanners

Safety laser scanners protect static or mobile areas near dangerous machinery. Built on advanced Time of Flight (ToF) measurement technology, the SLS series provides exceptional detection accuracy, flexible zoning, robust environmental resilience, and simplified configuration.

- Partial/dynamic muting, override, EDM, and configurable I/O functions
- Industry leading safety performance (SIL 2, PLd, Cat. 3)
- Up to 5.5m safety range and 40m warning zone coverage
- Wide 275° scanning angle enables large or complex area protection
- Selectable detection capability: 30 / 40 / 50 / 70 / 150mm
- Up to 3 simultaneous safety areas, depending on model selected
- Ideal for static, vertical, horizontal, and dynamic AGV applications
- IP65 protection rating
- Intuitive configuration and easy deployment via DL Sentinel GUI over Ethernet
- Advanced dust filtering and maintenance alerts (e.g., clean window alarm)

## ENHANCED MASTER SCANNERS

**STARTING AT \$4,267.00 (SLS-SA3-0812-E)**

Enhanced master safety laser scanners are designed for complex applications requiring multiple protective areas, extensive I/O capability, and advanced safety logic. They support high zone set capacity, multiple simultaneous safety zones, and several advanced functions. Their flexible connector options allow expanded I/O, making them ideal for robot cells, dynamic AGV protection with complex paths, and multi-stage manufacturing processes. Although optimized for master/remote networks, these scanners can also operate as sophisticated standalone units.

- Provides up to 3 simultaneous safety areas for complex multi-zone machine protection
- Offers high I/O flexibility, with up to 18 I/O points when used with the appropriate cable
- Equipped for advanced muting, override, EDM, and configurable OSSD functions
- Supports master-remote architecture capability for large or distributed systems
- Includes fast replacement and configuration backup
- Utilizes Ethernet-based configuration via DL Sentinel GUI for detailed setup
- Provides 275° scanning angle with fine angular resolution for high precision layouts



## SAFETY LASER SCANNERS

### STANDALONE SCANNERS

**STARTING AT \$2,472.00 (SLS-SA3-08)**

Standalone safety laser scanners deliver reliable, cost-effective safeguarding for fixed or semi-static industrial environments by providing essential protection without the complexity of networking or advanced configuration. Their compact 112 × 120 × 160mm housing and M12-based wiring simplify installation, making them ideal for machine builders and integrators needing straightforward deployment. Standalone scanners are a perfect solution for presses, assembly stations, conveyor systems, palletizing areas, and both horizontal and vertical access protection where simple, dependable safety coverage is required.

- Supports up to 6 selectable zone sets for basic flexibility
- One safety zone for straightforward protection needs
- Safety range options of 3m or 5.5m for typical guarding tasks
- Warning field up to 40m for early presence detection
- Utilizes Ethernet-based configuration via DL Sentinel GUI for detailed setup
- 275° opening angle with multiple resolution settings for varied protection needs
- IP65 rating and -10°C to 50°C operation for harsh industrial environments

### REMOTE SCANNERS

**STARTING AT \$3,531.00 (SLS-R3-E)**

Remote safety laser scanners serve as cost-effective extensions to enhanced master systems, delivering the same safety performance and scanning capabilities with minimal added latency. Their identical performance profile makes them ideal for AGVs and mobile platforms that need multi-directional coverage, complex path protection, or expanded area switching without adding the cost of an additional master unit. This architecture enables scalable, flexible safety coverage across dynamic environments.

- Support multiple protection areas when paired with a master controller
- One cable master/remote connection, fully safety approved for system chaining
- Provide identical scanning range, resolution, and performance features as the master units
- Enable scalable zone expansion without adding full-feature master hardware
- Master units maintain configuration backup for remote devices to ease replacement
- Suitable for complex industrial layouts needing distributed sensing points
- Allow cost-optimized coverage for large AGV fleets and multi-cell automation areas

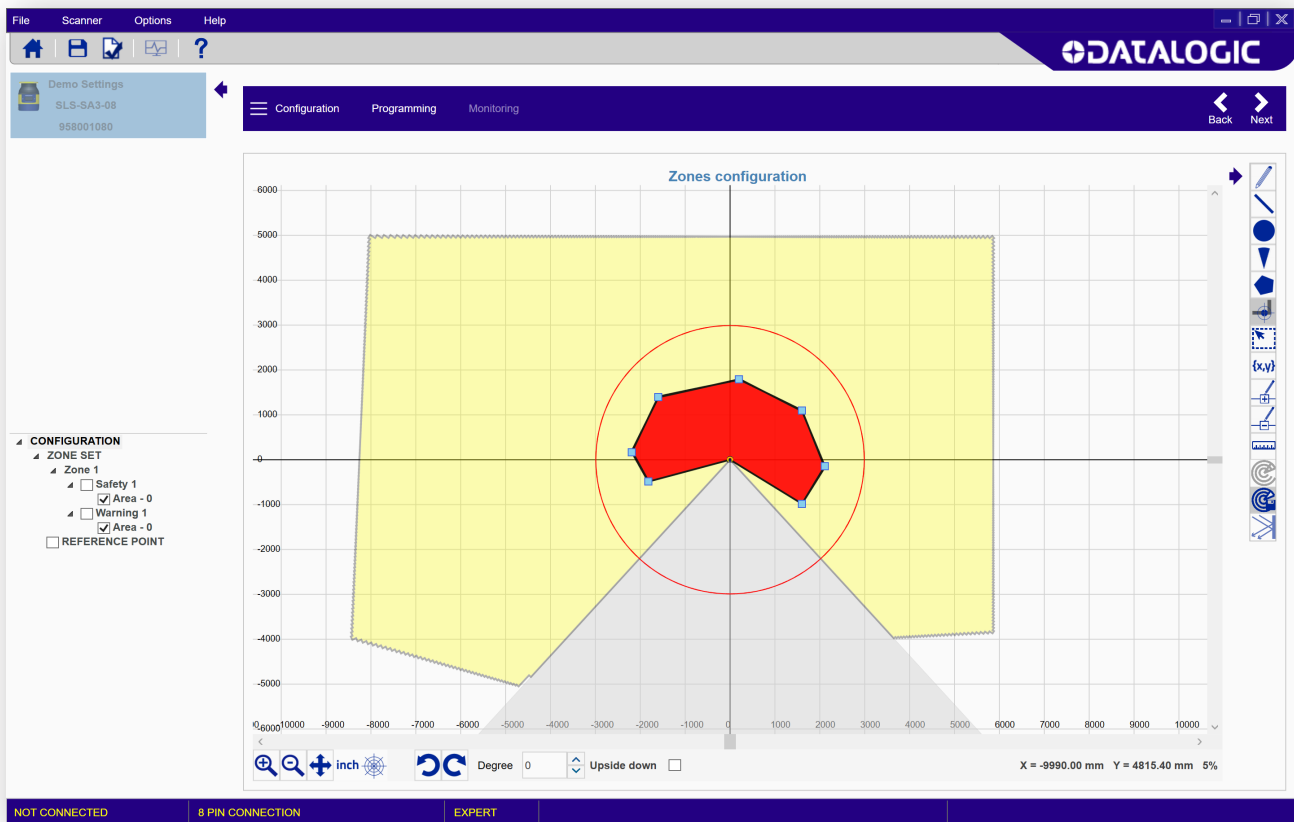


# SAFETY LASER SCANNER ACCESSORIES

## DL SENTINEL SOFTWARE

DL Sentinel software provides a dedicated, Ethernet-based configuration environment for Datalogic safety laser scanners, allowing users to easily set, adjust, and manage all scanner parameters. It supports advanced setup for enhanced and remote units, including zone creation, resolution selection,

muting/override logic, and system diagnostics. The intuitive GUI streamlines commissioning and maintenance while enabling precise customization of safety areas. DL Sentinel ensures consistent programming across master and remote units, simplifying complex multi-device architectures.



Safety Zone Configuration in DL Sentinel Software

## SAFETY LASER SCANNER ACCESSORIES

Safety laser scanner accessories facilitate the professional completion of a safety scanner installation. Choose from adjustable mounting brackets—supporting pitch-only or full pitch-and-roll alignment—as well as protective head covers. Additional accessories include replacement windows, replacement memory groups, and master/remote connection cables to keep your system performing at its best.

