SAFETY RELAYS
BUYING GUIDE

WHAT IS A SAFETY RELAY?

A safety relay is a specialized device designed to monitor hazardous conditions in industrial machinery and put dangerous equipment into a safe state if something goes wrong—ensuring worker safety and regulatory compliance.

Core Functions

- **Monitoring Safety Inputs**: Safety relays continuously watch signals from safety devices, such as E-stop buttons, light curtains, door interlocks, two-hand controls, or speed sensors. If any of those inputs signal a fault or unsafe condition, the relay reacts.
- **Forcing a Safe State**: When a fault is detected, the relay opens its output contacts, removing the control signal and bringing the machine to a safe state.
- **Feedback/Monitoring Loop**: Safety relays typically monitor the state of their own output contacts (positive-guided contacts) to verify they actually opened. If a contact welds shut, the relay detects this and prevents the machine from restarting.
- **Manual/Automatic Reset**: Many safety relays require a deliberate manual reset after a safety event is triggered, so the machine can't automatically restart after an E-stop or fault condition without an operator deliberately clearing it. This is application dependent and some relays offer an auto/manual reset option.

Topics

- **Redundancy**: Some safety relays use dual-channel inputs and cross-monitoring internally so that a single failure doesn't result in a loss of the safety function.

Why They're Different from Standard Relays: A standard relay simply switches a circuit—it has no self-monitoring, no redundancy, and no way to detect its own failure. A safety relay is designed so that any single internal failure still results in a safe output (this is called a fail-safe design), and its performance is certified to specific safety standards like Category architecture, IEC 62061 SIL rating, and ISO 13849 Performance Level.

A safety system is comprised of input, logic, and output. The safety relay is the logic portion of the safety control system.

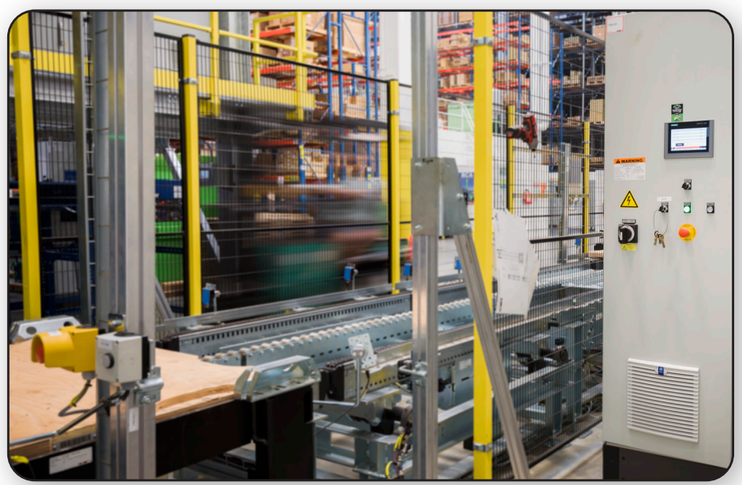
SAFETY RELAY TYPES

Safety relays are designed to monitor specific safety functions and ensure that machinery transitions to a safe state when hazards are detected. Different types of safety relays are optimized for particular applications, such as emergency stops, light curtains, safety gates, and two-hand controls. Each type is engineered to interface with its corresponding safety device, providing the appropriate monitoring logic and fault detection to meet functional safety requirements.

Type/Function

- **1-Channel E-Stop Safety Gate Relays**: Monitor single-channel emergency stop or gate inputs, ensuring reliable shutdown response.
- **2-Channel E-Stop Safety Gate Relays**: Provide cross-fault detection for higher safety integrity, responding to dual-channel inputs from E-Stops or interlocks.
- **E-Stop/Safety Gate Time Delay Relays**: Maintain outputs for a set period before shutdown, supporting controlled stopping of processes.
- **Two-Hand Safety Control Relays**: Require simultaneous operator hand action to initiate a cycle, preventing accidental or unsafe machine starts.
- **OSSD/Light Curtain Safety Relays**: Interface with Output Signal Switching Devices. These relays detect the removal of the OSSD signal when the safety device detects a fault or an unsafe condition.
- **Safety Mat & Edge Relays**: Work with pressure mats and edge sensors to halt machinery upon detection of operator presence in dangerous zones.
- **Speed Monitoring Safety Relays**: Track machine speed and trigger stop functions when exceeding safe limits or detecting unexpected changes.
- **Frequency Monitoring Safety Relays**: Observe motor power waveform to prevent unsafe operational patterns and detect faults promptly.
- **Motor Standstill Monitoring Relays**: Confirm that driven parts have come to a complete stop before allowing access or maintenance.
- **Multifunction Safety Relays**: Offer multiple monitoring modes in one unit, simplifying installation and reducing the need for separate modules.
- **Safety Extension Relays**: Provide additional outputs for existing safety systems, expanding control capabilities without altering primary safety logic.
- **Force Guided Relays**: Employ mechanically linked contacts to ensure all poles operate together, reducing the risk of welded contact failures.

By combining specific relay types, safety systems can be tailored to unique machinery and operational environments. The right relay ensures compliance and dependable protection throughout the equipment lifecycle.

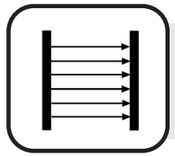


APPLICATIONS

Safety relays are deployed across industrial automation to meet specific protection needs. Each category targets unique hazards and process requirements, ensuring machinery operates within safe limits while safeguarding workers.

Machine Guarding: An E-Stop / safety gate relay can monitor the safety locking devices on gates that protect dangerous machinery, putting the equipment into a safe state if the signal is interrupted.

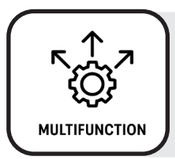
Hand Protection: Applied where operators must engage both hands to initiate a machine cycle, ensuring both are clear of the dangerous motion, such as a punch press that must be enabled before every machine cycle.



Zone Intrusion Detection: Connect to optical sensing devices to stop machinery when beams are interrupted. A common application for light curtains would be the entrance of a milling machine.

Speed Verification: Monitors rotational speed to ensure machinery is above or below a set speed before another operation can safely begin, such as an automated grinder would need to have the grinding wheel rotating fast enough before feeding material.

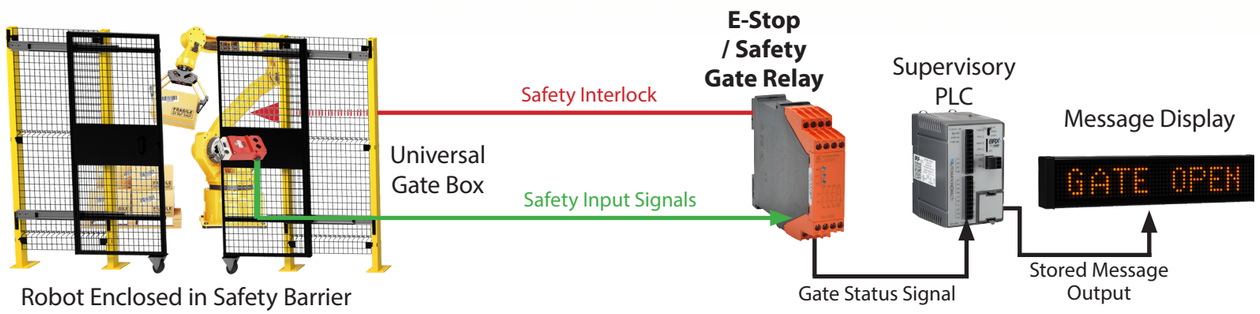
Standstill Detection: Confirms motors have fully stopped before enabling gate release or service entry, such as ensuring a saw blade behind a physical barrier has stopped spinning before allowing a gate to open, to prevent injury.



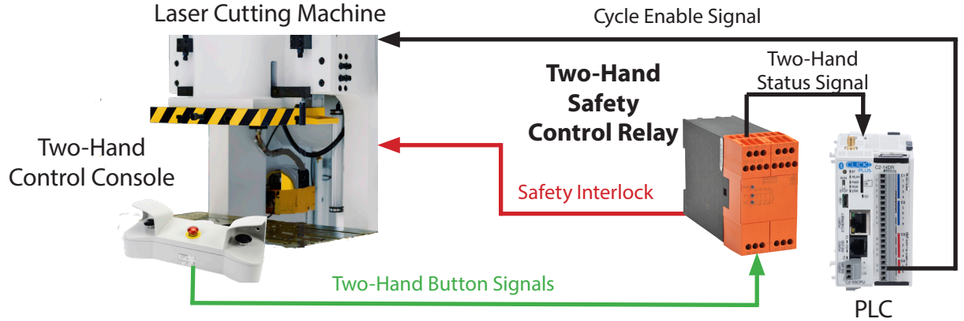
Multifunction Integration: Combines multiple safety input functions, such as gates, E-Stops, and mats, into a coordinated logic response. They can be used for applications such as a welding machine, which has a light curtain and two-hand control.

APPLICATION EXAMPLES

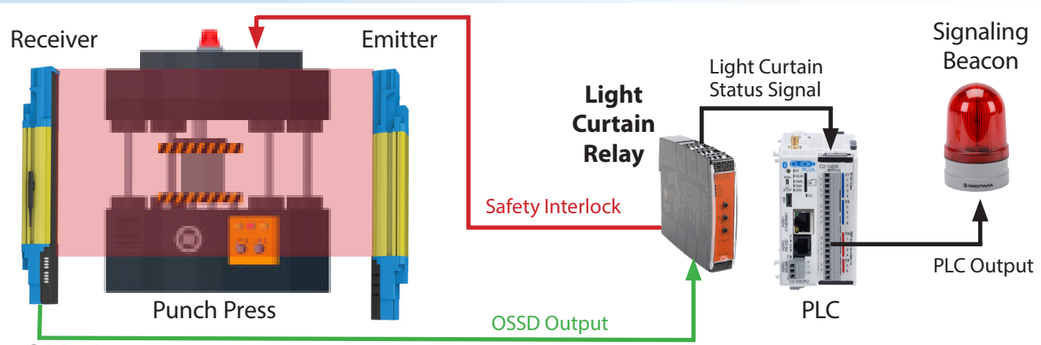
- **Machine Guarding**: An E-Stop / safety gate relay monitors a gate box that locks a barrier door protecting a robot cell. If the safety gate is opened, the relay will send a stop command to the robot as well as a status signal to the PLC which will output a message to a display.



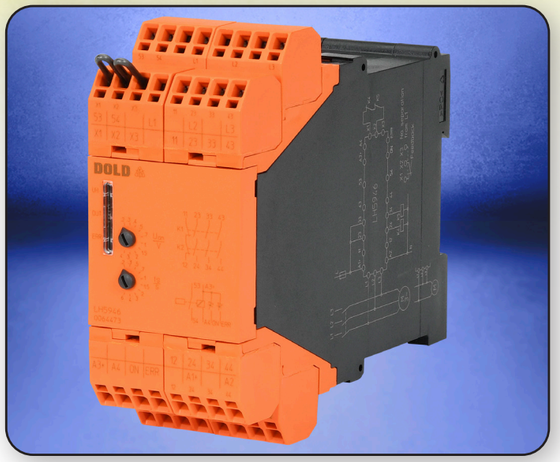
- **Two-Hand Control**: Two-hand safety control relays require both switches to be engaged simultaneously on a laser cutting machine for operation. This prevents accidental activation and ensures operator safety during hazardous operations. The relay stops operation or prevents a cycle start (via PLC) if an operator's hand is removed from the console.



- **Light Curtain Integration**: Commonly used in open access hazard zones—such as at a punch press—light curtain relays will open its outputs to stop the machine if a beam break or fault condition is detected, while the PLC can generate an alarm or status indication for diagnostics.



HOW TO CHOOSE



Proper safety device selection requires a comprehensive risk assessment as the foundation. Only after hazards are identified and evaluated can the appropriate safeguarding devices be specified.

Selecting the right safety relay for industrial applications involves matching relay function to specific hazards and operational requirements. Consider machine type, input sources, output demands, and environmental conditions before finalizing your choice.

APPLICATION SUITABILITY

1. 1-Channel E-Stop Relays: Select for single-input safety devices; ensure outputs can handle actuator load requirements.

2. 2-Channel E-Stop Relays: Use for dual input redundancy; confirm channels meet required cross-monitoring standards.

3. Time Delay E-Stop Relays: Choose when controlled shutdown timing is required; adjust delay to avoid nuisance trips.

4. OSSD/Light Curtain Relays: Specifically for OSSD integration; confirm relay supports required signal type and restart mode.

5. Safety Mat & Edge Relays: Select for pressure-sensitive guarding; verify relay meets response time for risk category.

6. Two-Hand Control Relays: Use for operations requiring the operators hands to be clear of a machine hazard prior to an operating cycle.

7. Multifunction Relays: Choose for systems needing varied safety logic; verify configuration flexibility suits multiple hazard controls.

8. Safety Extension Relays: Use when main safety relay outputs need expansion; verify coil voltage matches your system.

9. Speed Monitoring Relays: Ideal for detecting overspeed and/or underspeed; verify adjustable threshold matches application dynamics.

10. Frequency Monitoring Relays: Pick when precise rotational frequency tracking is needed; ensure compatibility with motor voltage.

11. Motor Standstill Relays: Use when hazardous motion stoppage must be confirmed; match monitoring input signal to motor.

12. Force Guided Relays: Pick when contact reliability is critical; confirm rated life matches operational demands.

INSTALLATION CONSIDERATIONS

13. Standards Compliance: Verify relay meets international safety norms; compliance ensures acceptance in regulated markets.

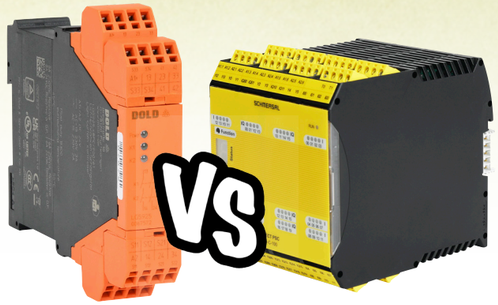
14. Output Capacity: Ensure relay output contacts handle load current; overspecify slightly to increase longevity. Add safety extension relays as needed.

15. Voltage Matching: Verify relay coil voltage matches control system supply; mismatches can cause malfunction or damage.

16. Environment Suitability: Check that the relay operates within ambient temperature and humidity ranges; select appropriate enclosures for harsh conditions.

SAFETY RELAY VS SAFETY CONTROLLER

Safety relays are an effective solution for monitoring a wide range of safety sensors and single-function safety applications. In certain scenarios, however, a safety controller provides advantages by simplifying wiring and reducing overall system costs.



When To Choose A Safety Relay

- Fundamental Safety Needs: Apply a safety relay for basic machinery that requires core protections such as emergency stops, light curtains, or gate monitoring.
- Simple Compliance Scenarios: Safety relays are best suited for smaller machines or standalone equipment with straightforward regulatory requirements.
- Minimal System Complexity: Use safety relays in uncomplicated safety systems where single-purpose circuits reliably mitigate identified risks.
- Fast Response Time: Direct hardwired connections on safety relays don't rely on CPU processing and react quickly.
- Budget Concerns: Safety relays are appropriate for cost-sensitive projects with stable designs unlikely to change over time.
- Widely Understood: Familiar to most electricians and technicians.
- No Special Training required: Safety relays are all configured with simple switches, dials, or wiring. No additional software knowledge is needed.
- Offline Systems: Use safety relays in environments demanding high reliability without software complexity or cybersecurity concerns.
- Computer Needs: If maintenance staff doesn't regularly use computers in the installed facility, safety relays are a better choice.

When To Choose A Safety Controller

- Multiple Device Types: Choose a safety controller when applications demand programmable logic, multiple zones, or frequent configuration changes.
- Diagnostic Requirements: Choose safety controllers when detailed diagnostics, fault identification, and networked safety data are required operationally.
- Scalability needed: Use safety controllers if scalability is important, such as adding devices or modifying safety logic later.
- Network Connectivity: Choose safety controllers for integrated systems leveraging EtherNet/IP, PROFINET, or other network infrastructure modules.
- Simplified Troubleshooting: Safety controllers simplify troubleshooting for maintenance teams through monitored logic and clear status indicator lights.
- Greater Oversight: Choose safety controllers when centralized management, version control, and change tracking are organizational requirements.
- Advanced Operations: Select safety controllers for advanced safety strategies aligning with Industry 4.0 and digital transformation initiatives.

PRODUCT CATEGORY OVERVIEW

Safety Relay Category Selection

Category	What it does	When to Choose This	Typical Applications	Key Selection Factors
1-channel E-Stop / Safety Gate Relays	Monitors a single-channel emergency stop or safety switch circuit and shuts down equipment when triggered	You have a basic safety device with a single circuit and low complexity	Standalone E-stop buttons, simple machines	Basic on/off protection, single-circuit monitoring
2-channel E-Stop / Safety Gate Relays	Monitors two redundant safety circuits for higher fault detection and reliability	You need higher safety performance or redundancy (more critical equipment)	Safety doors, dual-circuit E-stops, interlocks	Redundant (dual-channel) inputs, higher safety integrity
E-Stop / Safety Gate Time Delay Relays	Adds a controlled delay before shutting off outputs after a safety event	Equipment must complete a controlled stop instead of instant shutdown	Machines with inertia (fans, cutting tools, conveyors)	Adjustable delay timing, immediate + delayed outputs
Two-Hand Safety Control Relays	Requires both hands to activate controls simultaneously for safe operation	Operator must be kept clear of dangerous motion during startup	Presses, stamping machines, pinch-point equipment	Synchronous button monitoring, anti-tie-down logic
OSSD / Light Curtain Safety Relays	Interfaces with light curtains and optical safety devices to stop motion when a beam is broken	You're protecting access with light-based guarding instead of physical barriers	Packaging lines, robotic cells, automated workstations	Light curtain (OSSD) compatibility, muting options
Safety Mat & Edge Relays	Detects pressure on mats or edges to trigger a safe stop	You need area or perimeter protection around hazardous zones	Work cells, machine perimeters, access zones	Pressure-sensitive inputs, area protection coverage
Speed Monitoring Safety Relays	Monitors machine speed and signals when it reaches a safe condition	Safe operation depends on motion slowing to a safe speed	Rotating machinery, spindles, conveyors	Overspeed/underspeed detection, safe-speed thresholds
Frequency Monitoring Safety Relays	Tracks frequency signals (e.g., motor/inverter output) to detect abnormal speed conditions	You're monitoring variable-speed drives or motor frequency behavior	VFD-driven motors, slip-ring motors	Frequency window monitoring, over/under-frequency detection
Motor Standstill Monitoring Safety Relays	Confirms when a motor has completely stopped before allowing access	Access must be prevented until all motion fully stops	Machine guards, maintenance access doors	Zero-speed detection, safe-stop verification
Multifunction Safety Relays	Combines multiple safety functions in one unit for flexible setups	You need to handle several safety tasks without multiple relays	Complex machines, multi-device safety circuits	Configurable functions, multi-input flexibility
Safety Extension Relays	Expands the number of safety outputs from an existing relay	Your system needs more outputs but doesn't need a new control system	Large systems with multiple contactors or outputs	Output expansion, signal duplication
Force Guided Relays	Provides mechanically linked contacts to ensure reliable switching and fault detection	You need dependable output switching within a safety circuit	Control panels, safety output circuits	Positive-guided contacts, fault detection reliability

PRODUCT LINEUP

Safety relays are the final decision point for protecting machine hazards

Safety relays provide reliable, hardwired monitoring of critical safety devices, such as emergency stops, safety gates, light curtains, mats, and two-hand controls. Designed for deterministic performance and high diagnostic coverage, safety relays ensure fast machine shutdown, simplified compliance, and robust protection in industrial control systems.

- Dedicated models for E-Stop, safety gate, light curtain, mat/edge, two-hand, and motion monitoring
- Dual-channel architectures with cross fault detection for high fault tolerance
- Force guided safety contacts for reliable feedback and contact monitoring
- Manual or automatic restart options with external device monitoring (EDM)
- Adjustable time delay and multifunction variants for controlled stopping
- High safety performance up to Category 4, PLe, SIL 3 (model dependent)
- Compact DIN rail designs for efficient control panel integration

1-CHANNEL E-STOP / SAFETY GATE RELAYS

1-Channel E-Stop / Safety Gate Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD LG5924 Series	Basic emergency stop applications	Single-channel, compact, multiple voltage options	Simple, dependable safety on a budget	$

DOLD LG5924 SERIES 1-CHANNEL E-STOP / SAFETY GATE RELAYS

STARTING AT $112.00 (LG5924-02-61-24)

LG5924 single-channel safety relays offer a reliable, cost effective solution for basic emergency stop applications. Designed for straightforward machine safety circuits, these relays provide dependable shutdown performance across multiple control voltages while maintaining compliance with recognized functional safety standards.

- Single-channel emergency stop monitoring for simple safety architectures
- Available in 24 VDC, 110 VAC, and 230 VAC versions
- Positively guided safety contacts for reliable safety
- Compact DIN rail housing to fit into tight panel spaces
- High mechanical and electrical service life
- Suitable for SIL 2 / SIL 3 architectures
- LED status indication for diagnostics

2-CHANNEL E-STOP / SAFETY GATE RELAYS

E-Stop / Safety Gate Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD UF6925 Series	Space-constrained panels	Ultra-slim design, wide voltage range, dual-channel monitoring	Maximum performance in minimal space	$
DOLD LG5925 Series	Standard E-stop & safety gate applications	Dual-channel, feedback loop monitoring, flexible restart	Proven, reliable protection at a great value	$
IDEM Viper Series	High-risk machinery	Force-guided outputs, strong diagnostics, robust build	Premium reliability and ease of compliance	$$

DOLD UF6925 SERIES 2-CHANNEL E-STOP / SAFETY GATE RELAYS

STARTING AT $144.00 (UF6925-02-DC8-36)

UF6925 dual-channel safety relays combine a slim footprint with robust Category 4 performance for emergency stop and safety gate monitoring. Their wide DC voltage range and integrated diagnostics make them ideal for space constrained panels without sacrificing protection or compliance.

- Dual-channel E-Stop and gate monitoring
- Wide 8–36 VDC control voltage range
- Space-saving ultra slim 17.5 mm housing
- Monitored manual or automatic restart for flexibility
- Positively guided safety outputs
- Category 4, PLe, SIL 3 rated
- Integrated fault monitoring

DOLD LG5925 SERIES 2-CHANNEL E-STOP / SAFETY GATE RELAYS

STARTING AT $143.00 (LG5925-48-61-24)

LG5925 safety relays deliver proven dual-channel protection for emergency stops and safety gates. Featuring external contactor feedback and flexible restart control, they are well-suited for higher risk machinery requiring dependable shutdown and restart supervision.

- Dual-channel E-Stop and gate circuits
- Integrated feedback loop monitoring for maximum machine safety
- Flexible restart options
- Three N.O. safety outputs plus one N.C. for versatile system integration
- Category 4, PLe compliance
- SIL 3 capable system design
- Clear LED diagnostics for fast troubleshooting

IDEM VIPER SERIES 2-CHANNEL E-STOP / SAFETY GATE RELAYS

STARTING AT $177.00 (SCR21-280001)

IDEM Viper series 2-channel emergency stop and safety gate relays deliver reliable, cost effective safeguarding for industrial machinery. With true dual-channel monitoring, force guided outputs, and built in diagnostics, Viper relays simplify compliant safety circuit design while providing dependable machine stop and restart control.

- Dual-channel monitoring for emergency stop buttons and safety gates
- Force guided safety relay outputs for reliable fault detection
- Monitored manual or automatic restart configuration
- High diagnostic coverage with LED status indicators
- Compact DIN rail housing for space efficient panels
- Designed to meet Category 4, PLe, and SIL 3 safety requirements in suitable system

DOLD LG5928 SERIES E-STOP / SAFETY GATE TIME DELAY RELAYS

STARTING AT $298.00 (LG5928-41-61-3)

LG5928 time delay safety relays add controlled stopping capability to emergency stop and gate applications. By combining instantaneous and delayed safety outputs, they enable safer machine rundown while preserving high safety integrity.

- Instantaneous and delayed safety outputs allows versatile operation
- Dual-channel operation for reliable fault detection
- Adjustable release delay
- Manual or automatic restart for flexibility
- Line fault detection on reset circuit
- SIL 3 / PLe instantaneous paths
- Compact DIN rail mounting to save panel space

E-STOP / SAFETY GATE TIME DELAY RELAYS

E-Stop / Safety Gate Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD UG696 Series	Complex safety designs	Adjustable time functions, dual-channel	Flexible timing control for optimized stopping	$$
DOLD LG5928 Series	Machines needing controlled stopping	Instant + delayed outputs, adjustable delay	Safer machine rundown with full safety integrity	$$$
DOLD BH5928 Series	Advanced controlled stop sequences	Adjustable delay, combined instant/ delayed contacts	Precise deceleration while maintaining safety	$$$
IDEM Viper Series	High-performance applications	Configurable delays, force-guided outputs	Maximum flexibility and diagnostic coverage	$$$$

DOLD UG696 SERIES E-STOP / SAFETY GATE TIME DELAY RELAYS

STARTING AT $257.00 (UG6961-02PS100-300)

Dold UG696 series safety relays provide high performance protection for emergency stop or safety gate applications. With adjustable time functions, and dual-channel architecture, UG696 relays simplify complex safety designs while maintaining high functional safety integrity.

- Dual-channel safety architecture with cross fault monitoring
- Line fault detection provides reliable self-diagnostics
- Adjustable time delay functions for controlled machine stopping
- Force guided safety contacts with optional monitoring outputs
- Manual or automatic reset configuration for flexible operation
- High diagnostic coverage with clear LED status indicators
- Designed for Category 4, PLe, and SIL 3 safety architectures

DOLD BH5928 SERIES E-STOP / SAFETY GATE TIME DELAY RELAYS

STARTING AT $319.00 (BH5928-92-61-24-5)

BH5928 safety relays provide advanced time delay functionality for machines requiring controlled stop sequences. Adjustable delay ranges support safer deceleration while maintaining full emergency stop and safety gate compliance.

- Adjustable release delay timing
- Dual-channel E-Stop and gate monitoring
- Combination of delayed and instant contacts
- Manual or automatic restart
- Category 4, PLe safety rating
- SIL 3 capable
- High diagnostic coverage

IDEM VIPER SERIES E-STOP / SAFETY GATE TIME DELAY RELAYS

STARTING AT $496.00 (SCR3142TD-280006)

IDEM Viper series time delay safety relays add controlled stopping to emergency stop and safety gate circuits, helping protect personnel while allowing machines to decelerate safely. With configurable delay functions, dual-channel architecture, and force guided outputs, Viper relays deliver flexible, high integrity safety performance.

- Dual-channel emergency stop and safety gate monitoring with integrated time delay
- Adjustable delay functions, including release delay and retriggerable delay for controlled stopping
- Instantaneous and delayed force guided safety relay outputs
- Manual or automatic restart selection with monitoring for safe reset
- High diagnostic coverage with LED indicators for status and faults
- Designed to meet Category 4 (Cat 3 for delayed operation), PLe, and SIL 3 safety requirements in appropriate architectures
- DIN rail mounting with robust industrial construction for control panels

TWO-HAND SAFETY RELAYS

Two-Hand Safety Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD BG5933 / BH5933	Presses and hazardous motion equipment	Simultaneity detection, dual-channel	Reliable operator protection at a competitive price	$$
IDEM Viper Series	Demanding two-hand control applications	Dual-channel monitoring with simultaneity detection, force-guided outputs	Premium compliance and peace of mind	$$$$

DOLD BG5933 / BH5933 SERIES TWO-HAND SAFETY RELAYS

STARTING AT $208.00 (BG5933-22-61-24)

BG5933 and BH5933 two-hand safety relays protect operators during hazardous machine motions by ensuring the simultaneous actuation of both controls. Designed for presses and similar equipment, they deliver reliable redundancy and compliance with two-hand safety standards.

- True two-hand control monitoring for reliable operator safety
- Simultaneity detection per safety standards
- Dual-channel input architecture
- Positively guided safety contacts
- Feedback monitoring for external contactors
- LED diagnostic indicators
- SIL 3, PLe rated architectures

IDEM VIPER SERIES TWO-HAND SAFETY RELAYS

STARTING AT $456.00 (SCR2H-180030)

IDEM Viper series two-hand safety relays provide dependable operator protection for presses and hazardous machinery by ensuring true simultaneous actuation of dual control buttons. With robust dual-channel design and force guided outputs, Viper relays simplify compliance with two-hand control safety standards while maintaining high system integrity.

- Dedicated two-hand control monitoring for hazardous motion equipment
- Dual-channel input architecture with simultaneity detection (≤0.5 s)
- Force guided safety relay outputs for reliable machine shutdown
- Manual or monitored restart options for safer re-energization
- Integrated external device monitoring (EDM) capability
- Compact DIN rail housing for control panel efficiency
- Designed to meet PLe, SIL 3, and EN 574 Type III C requirements

OSSD / LIGHT CURTAIN SAFETY RELAYS

OSSD / Light Curtain Safety Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD UG6960 Series	Advanced optical safeguarding	Selectable delays, OSSD compatible	Versatile integration for complex setups	$$$$
DOLD LG5925 900 Series	Standard light curtain interfacing	Symmetric/asymmetric support, compact	Streamlined, cost-effective light curtain control	$$
DOLD BH5902	Critical light curtain & laser scanner applications	Robust diagnostics, EDM, dual-channel with cross fault detection	Highest integrity protection for demanding, high-risk environments	$$$$
IDEM Viper Series (OSSD / Light Curtain)	General OSSD/light curtain applications	Compact design, short-circuit detection, force-guided outputs, manual/automatic reset	Easy integration and solid performance	$$

DOLD UG6960 SERIES OSSD / LIGHT CURTAIN SAFETY RELAYS

STARTING AT $379.00 (UG6960-04PS800-300)

UG6960 light curtain safety relays provide advanced control for optical safeguarding devices. With selectable delay functions and OSSD compatibility, they offer flexible integration while maintaining Category 4 safety performance.

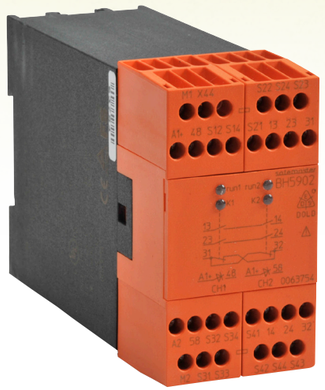
- Designed for Type 4 light curtains
- OSSD input compatibility
- Selectable delay functions allow for both instantaneous and timed outputs
- Dual-channel monitoring
- Semiconductor and relay outputs to allow interfacing to multiple devices
- SIL 3, PLe compliance
- Clear LED diagnostics

DOLD LG5925 900 SERIES OSSD / LIGHT CURTAIN SAFETY RELAYS

STARTING AT $176.00 (LG5925-48-900-61)

LG5925 900 relays offer a streamlined solution for light curtain interfacing using proven dual-channel safety architecture. They support symmetric and asymmetric light curtain outputs for broad application flexibility.

- Light curtain safety controller
- Single- or dual-channel operation
- Symmetric/asymmetric output support
- Manual or automatic restart
- High diagnostic coverage
- Category 4, PLe rated
- Compact DIN rail design



DOLD BH5902 SERIES OSSD / LIGHT CURTAIN SAFETY RELAYS

STARTING AT $488.00 (BH5902-22-01MF2-61)

Dold BH5902 safety relays are designed for reliable evaluation of OSSD based devices such as safety light curtains and laser scanners. With dual-channel architecture and robust diagnostics, the BH5902 series delivers dependable machine shutdown performance while supporting high functional safety levels in demanding industrial environments.

- Designed for OSSD outputs from Type 4 light curtains and scanners
- Dual-channel input monitoring with cross fault detection
- Positively guided safety relay outputs
- Manual or automatic restart selectable by wiring
- Integrated external device monitoring (EDM)
- LED indicators for input, output, and fault status
- Suitable for SIL 3, PLe, Category 4 applications

IDEM VIPER SERIES OSSD / LIGHT CURTAIN SAFETY RELAYS

STARTING AT $232.00 (SCR31P-280003)

IDEM Viper series safety relays provide a compact, cost effective solution for monitoring OSSD safety devices such as light curtains and area scanners. Engineered for straightforward integration and dependable performance, Viper relays help simplify safety circuits while maintaining compliance with modern machine safety requirements.

- Compatible with Category 4 OSSD safety devices
- Dual-channel safety inputs with short circuit detection
- Force guided safety relay outputs for reliable isolation
- Monitored manual or automatic reset options
- External contactor feedback monitoring
- Compact DIN rail housing for space limited panels
- Designed to meet PLe, SIL 3 safety architectures

SAFETY MAT & EDGE RELAYS

Safety Mat & Edge Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
ASO ELMON Series	Safety mats, edges & bumpers	Single-channel with monitoring	Proven, straightforward evaluation	$$
DOLD LG5944 Series	Personnel access zones	Dual-channel, 2/4-wire mat support	Consistent, repeatable protection	$$
DOLD BG5925 Series	High-risk mat & edge applications	Category 4 dual-channel	Maximum fault tolerance for demanding areas	$$

ASO ELMON SERIES SAFETY MAT & EDGE RELAY

STARTING AT $186.00 (1114-0210)

ASO ELMON safety relays provide proven, dependable evaluation of safety mats, edges, and bumpers in industrial access protection applications. Designed for straightforward integration and high diagnostic coverage, ELMON relays deliver reliable personnel protection while supporting compliance with global functional safety standards.

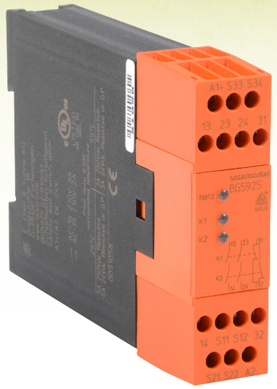
- Dedicated evaluation of safety mats, edges, and bumpers
- Single-channel safety architecture with monitored control loop
- Positively guided safety relay outputs for reliable shutdown
- Manual or automatic reset capability via wiring
- Integrated resistor and line fault monitoring
- LED indicators for power and fault diagnostics
- Suitable for Category 3, PLe, SIL 3 safety applications

DOLD LG5944 SERIES SAFETY MAT & EDGE RELAY

STARTING AT $171.00 (LG5944-02-010-24)

LG5944 safety relays are purpose built for monitoring safety mats and edges in personnel access zones. Dual-channel design and restart flexibility make them ideal for industrial guarding applications requiring consistent, repeatable protection.

- Reliable safety mat and edge monitoring
- Dual-channel architecture
- Supports 2- or 4-wire mat circuits for system flexibility
- Manual or automatic restart
- Positively guided safety outputs
- SIL 3, PLe rated
- Line fault detection



DOLD BG5925 SERIES SAFETY MAT & EDGE RELAY

STARTING AT $187.00 (BG5925-22-910-24)

BG5925 relays deliver Category 4 protection for demanding safety mat and edge applications. Designed for high risk areas, they combine robust fault tolerance with clear diagnostics for operator safety.

- Category 4 dual-channel architecture
- Dedicated mat and edge evaluation
- Manual or automatic restart
- High diagnostic coverage
- Positively guided contacts
- SIL 3, PLe certified
- LED channel indicators

SPEED MONITORING SAFETY RELAYS

Speed Monitoring Safety Relays				
Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
DOLD UH6932 Series	Comprehensive speed & motion monitoring	Wide adjustment range, dual-channel	Reliable protection across many applications	$$$$
DOLD BH5932 Series	Basic underspeed/ overspeed monitoring	Proximity sensor inputs, adjustable	Cost-effective speed control	$$$
DOLD UH5947 Series	Complex machinery needing standstill + speed	Combined functions, encoder support	All-in-one advanced speed monitoring	$$$$

DOLD UH6932 SERIES SPEED MONITORING SAFETY RELAYS

STARTING AT $608.00 (UH6932-02PS-24)

UH6932 speed monitoring safety relays ensure machinery remains within safe operating speeds. Using proximity sensor inputs, they provide reliable overspeed and standstill detection for rotating or linear motion equipment.

- Speed and motion monitoring
- PNP or NPN sensor compatibility
- Dual-channel safety design
- Adjustable speed thresholds to cover a multitude of applications
- SIL 3, PLe compliance
- Category 4 rating
- LED status indicators for easy troubleshooting

DOLD BH5932 SERIES SPEED MONITORING SAFETY RELAYS

STARTING AT $454.00 (BH5932-22-113-24)

BH5932 safety relays offer precise speed monitoring for motors using proximity sensors. They support both underspeed and overspeed detection, ensuring machines only operate at safe speeds.

- Motor speed monitoring
- Dual-channel sensor evaluation
- Adjustable response settings
- Positively guided safety contacts
- SIL 3 safety integrity
- High mechanical life
- DIN rail mounting

DOLD UH5947 SERIES STANDSTILL & SPEED MONITORING SAFETY RELAYS

STARTING AT $691.00 (UH5947-04PS24)

Dold UH5947 standstill & speed monitoring safety relays combine speed and standstill monitoring, along with a dual-channel E-Stop / safety gate function in a single configurable device. Using encoders or proximity sensors, they deliver flexible, high integrity motion monitoring for complex machinery requiring advanced diagnostics and coordinated safety functions.

- Combined standstill, speed, and safety gate monitoring
- Supports encoder, PNP/NPN, or NAMUR sensor inputs
- Adjustable startup delay and monitoring times
- Dual-channel safety evaluation with diagnostics
- Positively guided relay outputs with semiconductor monitoring
- Category 4, PLe, SIL 3 capable design

FREQUENCY MONITORING SAFETY RELAYS

Frequency Monitoring Safety Relays				
Series Name	Best For	Key Attributes	Primary Benefit	Price Tier
DOLD UH6937	Direct motor/inverter overspeed protection	No external sensors needed	Simple, highly reliable frequency-based safety	$$$$

DOLD UH6937 SERIES FREQUENCY MONITORING SAFETY RELAYS

STARTING AT $694.00 (UH6937-02PS-24)

UH6937 frequency monitoring relays protect machinery by directly monitoring motor or inverter output frequency. With no external sensors required, they provide a compact, highly reliable solution for overspeed protection.

- Direct frequency monitoring
- No external sensors required
- Dual-channel safety evaluation
- Broken wire detection
- SIL 3, PLe compliance
- Adjustable response delays
- LED diagnostics

STANDSTILL MONITORING SAFETY RELAYS

Standstill Monitoring Safety Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD LH5946 Series	Single & three-phase motors	Wide voltage range, no external sensors	Safe access/ maintenance without added sensors	$$$$
DOLD UG6946 Series	Compact panels with limited space	Sensorless residual voltage sensing	Space-saving, dependable standstill detection	$$$

DOLD LH5946 SERIES STANDSTILL MONITORING SAFETY RELAYS

Priced AT $562.00 (LH5946-48-115-40)

Dold LH5946 standstill monitoring safety relays provide reliable detection of stopped motors by monitoring remanent motor voltage. Designed for both single and three phase motors, LH5946 relays eliminate the need for external sensors while ensuring safe access and maintenance in demanding industrial applications.

- Standstill detection via motor remanent voltage
- No external speed or position sensors required
- Supports single phase and three phase motors up to 690 VAC/VDC
- Adjustable voltage threshold and time delay
- Positively guided safety relay contacts
- Category 4, PLe, SIL 3 capable architectures

DOLD UG6946 SERIES STANDSTILL MONITORING SAFETY RELAYS

STARTING AT $371.00 (UG6946-02PS-04)

Dold UG6946 standstill monitoring safety relays offer compact, sensorless detection of motor standstill using residual voltage evaluation. Ideal for applications with limited panel space, they provide dependable motor safety monitoring while maintaining high functional safety levels across a wide range of industrial machines.

- Compact standstill relay using remanent voltage sensing
- Designed for AC and DC motor applications
- Adjustable standstill voltage and delay settings
- Dual-channel safety architecture
- Positively guided N.O. and N.C. safety contacts
- Category 4, PLe, SIL 3 certified safety capability

MULTIFUNCTION SAFETY RELAYS

Multifunction Safety Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD UG6980 Series	Machines with multiple safety functions	Several selectable functions in one unit	Reduces component count and simplifies design	$$
DOLD UG6970 Series	Complex applications needing two functions	Two independent safety functions	Powerful flexibility in a single compact device	$$$

DOLD 6980 SERIES MULTIFUNCTION SAFETY RELAYS

PRICED AT $239.00 (UG6980-02PS-61-24)

Dold 6980 multifunction safety relay modules provide flexible safety control for complex machinery using a single device. By supporting multiple selectable safety functions, the 6980 series simplifies system design, reduces component count, and delivers high integrity protection for demanding industrial safety applications.

- Supports multiple selectable safety functions in one module (E-Stop, safety gate, light curtain, safety mat, two-hand)
- Dual-channel architecture for high fault tolerance
- Positively guided safety relay outputs for reliable isolation
- Manual or automatic restart configuration via wiring
- Semiconductor monitoring outputs for diagnostics and PLC feedback
- Compact 22.5 mm DIN rail housing reduces panel space
- Certified to SIL 3 and PLe safety levels in suitable architectures

DOLD UG6970 SERIES MULTIFUNCTION SAFETY RELAYS

PRICED AT $386.00 (UG6970-04PS-61-24)

UG6970 multifunction safety relays combine two independent safety functions in a single device. Supporting E-Stop, gates, light curtains, mats, and two-hand controls, they simplify complex safety architectures while maintaining Category 4 performance.

- Two independent selectable safety functions
- Supports multiple safety device types
- Dual-channel monitoring
- Positively guided outputs
- Semiconductor monitoring outputs
- SIL 3, PLe compliance
- Compact 22.5 mm width

SAFETY EXTENSION RELAYS

Safety Extension Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD UG6929 / LG5929 / LG792	E-stop & gate circuit expansion	High current capacity, time-delay option	Easy output increase while preserving safety	$
DOLD RK6929 Series	Basic contact expansion	Compact, force-guided	Affordable output multiplication	$
IDEM Viper Series	Matching Viper safety systems	Force-guided, galvanic isolation	Seamless system expansion	$$
ReeR Mosaic MR Series	OSSD-based systems	Scalable outputs, removable terminals	Flexible expansion for Mosaic or standalone use	$$

DOLD UG6929, LG5929, and LG792 SERIES SAFETY EXTENSION RELAY MODULES

STARTING AT $146.00 (LG5929-60-100-61)

UG6929 and LG5929 safety extension relays provide contact expansion for safety circuits while preserving forced guided integrity. The LG792 series adds a time-delay function for contact switching. They are ideal for increasing output capacity in E-Stop and gate applications without redesigning control logic.

- Safety contact multiplication
- Forced guided relay design
- Dual-channel control capability
- High current switching capacity
- SIL 3, PLe capable
- LED diagnostics
- Compact DIN rail mounting

DOLD RK6929 SERIES SAFETY EXTENSION RELAY MODULES

STARTING AT $73.00 (RK6929-16PS-61)

RK6929 force guided relays deliver compact, isolated safety switching where control outputs alone are insufficient. They provide reliable galvanic isolation and redundancy for safe power control.

- Force guided relay contacts
- Single- or dual-channel versions
- Compact housing footprint
- Galvanic isolation between input/output
- High reliability mechanical life
- Retains SIL rating when part of a properly designed system

IDEM VIPER SERIES SAFETY EXTENSION RELAY MODULES

STARTING AT $184.00 (SEU31-280007)

IDEM extension relay modules expand safety circuit output capacity while preserving force guided integrity. Designed to pair with safety relays and controllers, they provide reliable, redundant contact multiplication for machine interlocks and power isolation, simplifying panel design while maintaining compliance with functional safety requirements.

- Force guided relay contacts for safe contact expansion
- Single- or dual-channel control configurations
- Galvanic isolation between control and load circuits
- Supports higher load switching without redesign
- Compact DIN rail form factor for panel efficiency
- Maintains system PL/SIL when correctly integrated
- Clear status indication for troubleshooting

ReeR MOSAIC SERIES SAFETY EXTENSION RELAY MODULES

STARTING AT $172.00 (MOSAIC-MR2)

ReeR MOSAIC MR2 and MR4 extension relays fit with the MOSAIC safety controller system footprint, but add scalable, safe outputs to any safety relay installation. Featuring force guided contacts and removable terminals, these modules enable flexible output expansion for OSSD based safety systems while preserving Category 4 performance and simplifying wiring and maintenance.

- MR2: 2 N.O. safety outputs + monitoring contact
- MR4: 4 N.O. safety outputs + dual monitoring contacts
- Force guided relay design for high safety integrity
- Removable terminal blocks for fast installation
- Category 4, PLe, SIL 3 capable architectures

FORCE GUIDED RELAYS

Force Guided Relays				
Series Name	**Best For**	**Key Attributes**	**Primary Benefit**	**Price Tier**
DOLD Force Guided	Feedback, redundancy & contact multiplication	Positively guided contacts, multiple configurations	Reliable fault detection and safe switching	$

DOLD FORCE GUIDED RELAYS

STARTING AT $44.50 (HC3096N-52-900-24)

Dold force guided relays provide reliable, positively driven contact technology for safety related control circuits. Designed for feedback, redundancy, and contact multiplication, these relays ensure dependable fault detection and signal isolation in emergency stop, safety gate, and machine control applications.

- Positively guided (force guided) contacts for reliable contact state monitoring
- Designed for use in safety feedback and contact expansion circuits
- Mechanical linkage prevents simultaneous N.O. and N.C. contact closure
- Long mechanical life for demanding industrial duty cycles
- Compact, DIN rail mountable housings for control panel efficiency
- Suitable for integration in PL and SIL rated safety architectures
- Multiple contact configurations available for flexible circuit design