



MAGNETEK

INTELLI- PROTECT™ SYSTEM

NO-FLY ZONE TECHNOLOGY



COLUMBUS MCKINNON CORPORATION

Improving Safety and Productivity Through Automation. Protect personnel and improve facility throughput with Intelli-Protect™ Systems featuring no-fly zone technology.

No-fly zones refer to protected areas where normal crane operation is limited or entirely restricted. Magnetek® brand Intelli-Protect Systems allow you to designate locations where a crane is programmed to slow down or stop, using motion control products such as variable frequency drives, radio remote controls, limit switches, and sensors. These versatile systems – ranging from simple configurations, to the more complex – can be added to existing crane controls or on new installations. Implementing an Intelli-Protect System limits the risk of collisions, increases safety for equipment and personnel, and improves facility throughput.

From Columbus McKinnon Automation, Intelli-Protect, and other automation solutions, increase the safety, productivity, and uptime of your facility. Intelli-Protect is ideal for the automotive, steel, manufacturing, and pulp and paper industries.



Columbus McKinnon and its dedicated Automation Division are working side by side with customers to leverage automation technology to improve their safety, productivity and uptime. We'll partner with you every step of the way, from project evaluation to aftermarket support, to ensure your application needs are met – every time.



INTELLI-PROTECT™ SYSTEM

NO-FLY ZONE TECHNOLOGY

FEATURES & BENEFITS

IMPROVED FACILITY SAFETY

To limit the risk of collisions, Intelli-Protect offers two protection boundaries to limit or stop crane operation. When crossing an initial slow down boundary, the crane speed is limited. When crossing a stop boundary, the crane stops to prevent entrance into the no-fly zone. The crane can back out of a zone and resume operation at normal speeds and control directions outside of the no-fly zone.

CONFIGURE TO EXACT REQUIREMENTS

A Personal Electronic Device (PED), such as a laptop, smartphone, or tablet, allows for full configuration of Intelli-Protect Systems. Systems can also be enabled or disabled as changing process, plant, and crane conditions require. After commissioning, the PED can monitor no-fly zones, inputs, outputs, and troubleshoot faults or alarms. The Wi-Fi signal can be turned off after setup to prevent programming changes.

OPTIMIZED PRODUCTIVITY

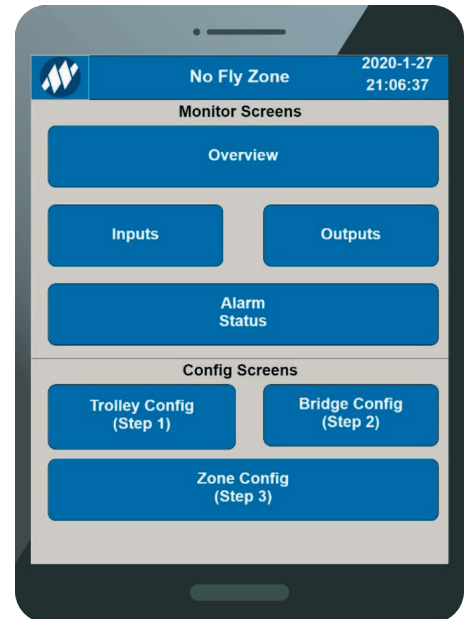
PLC experience is not required for installation and commissioning of Intelli-Protect, so your facility can get up and running quickly. Using the Wi-Fi connection to the web interface eliminates the need to go up on the crane to set up or view diagnostic information. The user interface is designed to enable configurations from the plant floor. Intelli-Protect provides an overview that displays plant floor layout, active zones, and crane movement, as well as control system status information.

PREDICTABLE, REPEATABLE OPERATION

Once two-sided, three-sided, four-sided, or configurable no-fly zones are designated, cranes reliably and consistently traverse production areas, minimizing downtime.

FLEXIBILITY FOR YOUR APPLICATION NEEDS

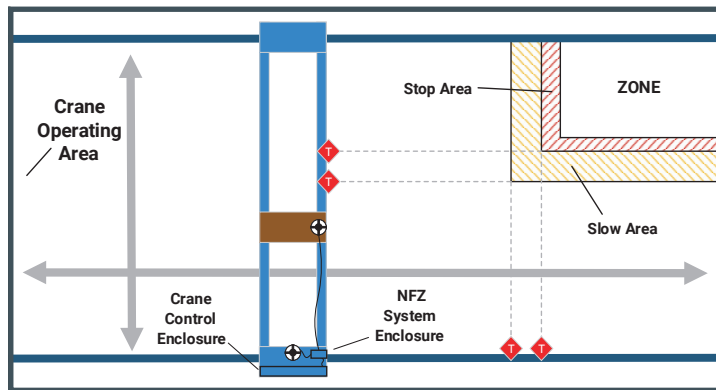
Robust design allows for fixed location or fully configurable operation in both indoor and outdoor applications. The Intelli-Protect System can be easily bundled with Magnetek® brand motion control products for additional safety and diagnostic information.



FIXED LOCATION SYSTEM

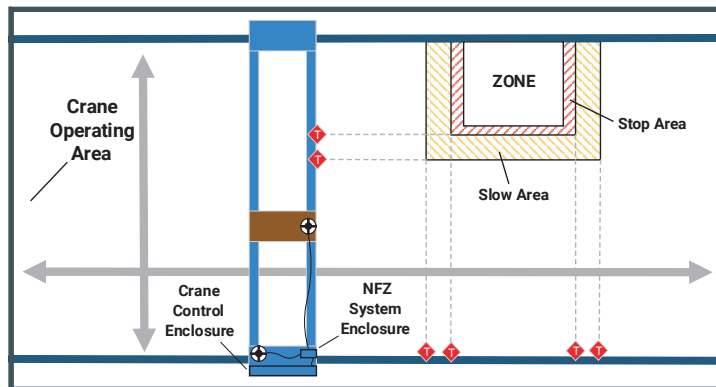
The fixed location Intelli-Protect™ System utilizes limit switches installed on bridge and trolley motions that interface with a controller for functional customization. These systems are available in three configurations optimized for two-sided, three-sided, and four-sided areas where crane motion is limited or entirely restricted. Each fixed location Intelli-Protect System includes a panel-mounted, key-operated, two-position enable/disable switch that allows users to bypass Intelli-Protect System functionality and allow crane operation in the no-fly zone as necessary.

SYSTEM DIAGRAMS

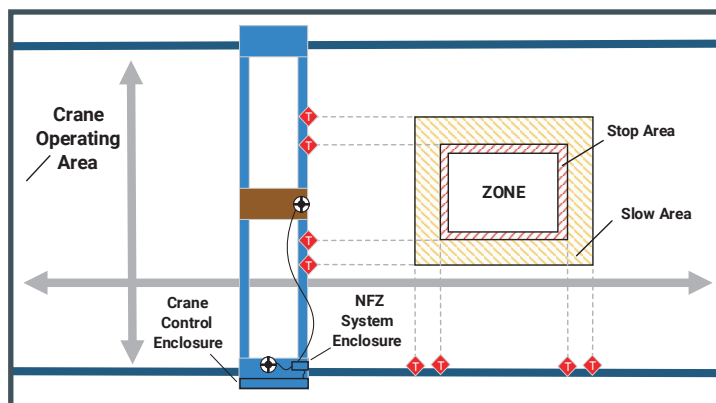


Two-Sided Fixed Location Example

Legend	
	No-Fly Zone (Crane Movement Prohibited)
	Warning Zone (Slow Speed Limit Enforced)
	Crane Motion Axis
	Limit Switches (Number/Type Dependant on Config)
	System Limit Switch Trip Point



Three-Sided Fixed Location Example



Four-Sided Fixed Location Example

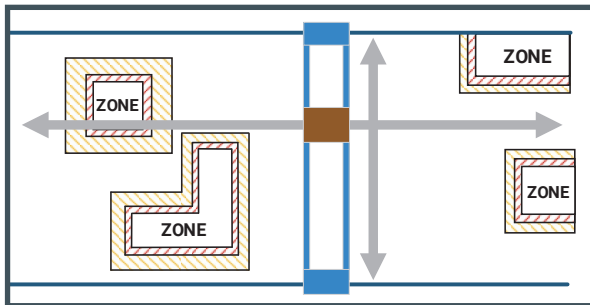
FLYOVER ZONES

Operators can also program flyover no-fly zones, which are areas where crane movement is vertically limited because of machinery or other obstacles. This can be done using hoist upper limits and machine down inputs.

CONFIGURABLE SYSTEM

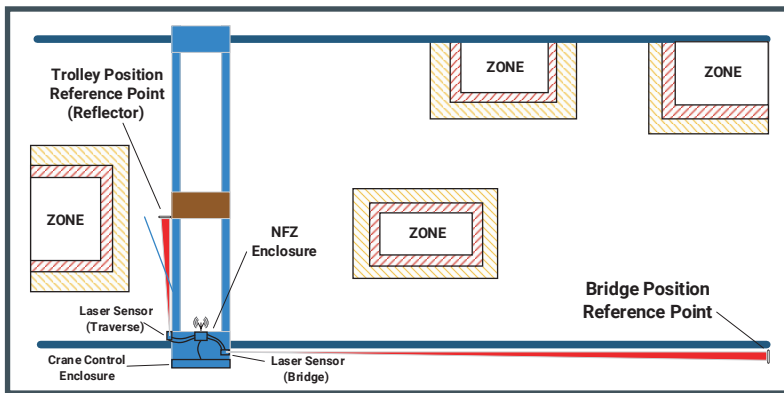
Configurable Intelli-Protect Systems utilize laser positioning sensors installed on bridge and trolley motions that interface with a controller for functional customization. This system incorporates a simplified menu-driven operator interface accessed over a wireless connection via the use of a Personal Electronic Device (PED) such as a laptop, smartphone, or tablet. This operator interface provides flexibility to configure no-fly zones and enable or disable as changing process, plant, and crane conditions require. Intelli-Protect can enable and configure up to 31 protected areas.

SYSTEM DIAGRAMS



Legend	
	No-Fly Zone (Crane Movement Prohibited)
	Warning Zone (Slow Speed Limit Enforced)
	Crane Motion Axis
	Laser Position Sensor (w/ Position Reference Reflector)
	Wi-Fi

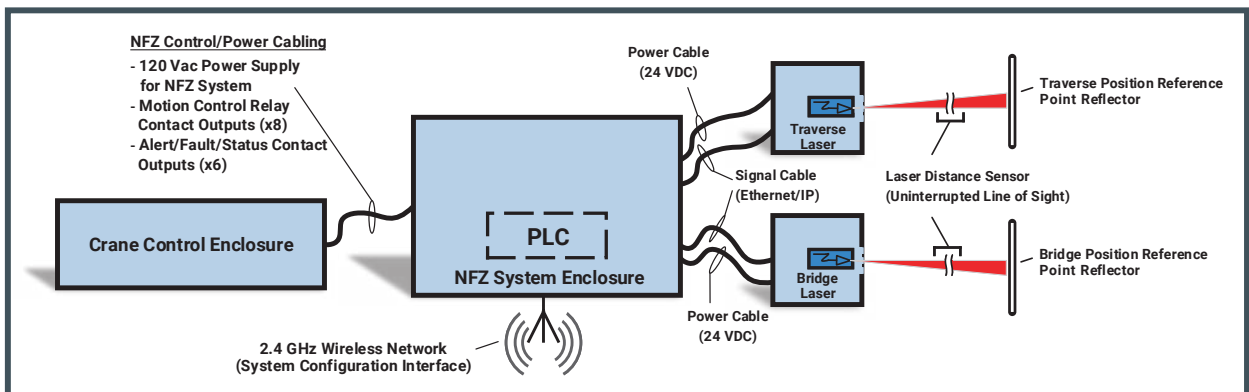
Configurable Example (Overhead Traveling Bridge Crane)



FLYOVER ZONES

Operators can also program flyover no-fly zones, which are areas where crane movement is vertically limited because of machinery or other obstacles. This can be done using hoist upper limits and machine down inputs.

Plan View Example



Signal Interface Diagram

SYSTEM COMPONENTS

COMPONENTS	Fixed Location System	Fully Configurable System
SYSTEM ENCLOSURE	●	●
NEMA 4X	●	●
120 VAC Supply Breaker (customer supplied 120 VAC, 60 Hz)	●	●
24 VDC Power Supply	●	●
External Permissive Two-Position Key Switch (Enable/Disable of Intelli-Protect Areas)	●	●
External Permissive Two-Position Key Switch (On/Off of Wi-Fi)	●	●
Status Indicators with Horn	●	●
Controller	●	●
Designated Vertical Limit Input (Hoist Up and Machine Down)	●	●
Interposing Relays	●	●
LIMIT SWITCHES	●	
LASER POSITIONING SYSTEM		●
Positioning Laser Distance Sensors (Up to 300m)		●
Reflective Target		●



Status Light Stack

PART NUMBERS	System	Type	Trolley (m)	Bridge (m)
NFZ-FC-5050	Fully Configurable	Laser	50	50
NFZ-FC-50150	Fully Configurable	Laser	50	150
NFZ-FC-50300	Fully Configurable	Laser	50	300
NFZ-FC-150150	Fully Configurable	Laser	150	150
NFZ-FC-150300	Fully Configurable	Laser	150	300
NFZ-NC-2	Fixed 2-Sided	Limit Switch	N/A	
NFZ-NC-3	Fixed 3-Sided	Limit Switch		
NFZ-NC-4	Fixed 4-Sided	Limit Switch		

INDUSTRY-LEADING SERVICE & TRAINING

With a legacy spanning more than 140 years, Columbus McKinnon's best-in-class products are used in a variety of industries around the world. Developed by our team of product managers, engineers, and manufacturing professionals, our products are designed for top-of-the-line performance, reliability, and safety.

Whether you need help selecting the best product or system for your lifting application or assistance with routine maintenance, we are here for you. Our highly trained team of service technicians offers superior aftermarket support, available to you 24/7, 365 days a year.

1.833.SVC.CMCO (1.833.782.2626)

BE SAFE. GET TRAINED.

Whether you need to meet OSHA or ASME requirements, receive overhead crane and rigging certification, or simply gain the peace of mind that comes from having a safer work environment, Columbus McKinnon can help.

With dedicated professional trainers and challenging comprehensive curriculum, we bring you professionally developed courses that help you ensure safe product use as well as accurate and timely product maintenance. Held at our state-of-art training centers or on-site at your facility, our lectures and hands-on training will teach students proper care, inspection, and application of all types of cranes and lifting equipment, as well as applicable industry regulations.

- Overhead Crane & Hoist Inspection Certification
- Overhead Crane & Hoist Frequent Inspection
- Rigging & Crane Operator Safety Training
- CMCO University™ Sales and Product Training
- Static Stepless Crane Controls Training
- IMPULSE® AC Drive Training
- DC Drive Training
- Radio Remote Control Training
- Mondel Brake Training



CRANE SOLUTIONS



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