

Perimeter Guarding Safety Systems



GateMaster™: A Safety PES (Programmable Electronic System) that streamlines maintenance procedures

Overview

Every day, global manufacturers strive to create safer and more productive environments for their production facilities. They are faced with emerging safety standards and new regulations, as well as competitive pressures to reduce costs and increase productivity. These manufacturers require safety systems with the increased functionality that is an integral part of machine control systems. Rockwell Automation has grown with the industry, developing solutions to meet these needs.

Problem

The complexity of automated systems has increased. As a result, machine perimeter guarding and lockout (Zero Energy) procedures have been implemented to protect personnel during maintenance. Although they provide safety, these procedures are time consuming and cumbersome - especially when small adjustments, part relocation or simple maintenance is required.

Perimeter guarding and OSHA lockout requirements affect many processes and types of machinery, in a variety of industries: Automotive Body Shops, Assembly, Welding, Painting, Machining, Metalforming, Material Handling and Packaging. New perimeter guarding safety systems can help to simplify these complex and time consuming lockout procedures.

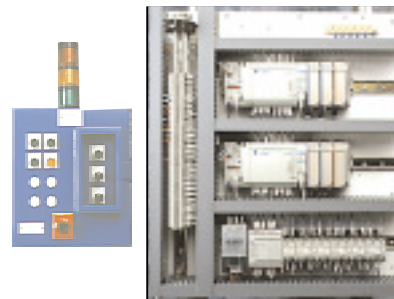
Previous Solutions

Earlier safety systems were based on hardwired, electromechanical, relay circuits and were subject to:

- Costly to implement
- Limited in diagnostics
- Hardwired and inflexible
- Difficult to troubleshoot
- Require large panels
- Not compatible with today's programmable and network-based control systems

GateMaster™

by Rockwell Automation



Newer Alternatives

Rockwell Automation has developed a family of 1002D solutions that include PLC, hardwired and combination systems. The Rockwell Automation GateMaster™ Perimeter Guarding Safety System is based on standard, proven, locally available PLC hardware like the MicroLogix 1500 shown in the photo. The GateMaster™ system is designed to integrate into the existing spectrum of automation and controls through its open network technology for monitoring, diagnostics and troubleshooting.

The GateMaster™ Architecture

The GateMaster™ system hardware, application software and documentation are built to meet the safety standards and requirements for perimeter guarding applications. The system features two redundant cross-wired PLC's with PROM like flash memory security for application, testing and verification software. It includes comprehensive pre-programmed status diagnostics and



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prompts, and interfaces to many display options. Pre-wired and mounted on a subplate, it easily interfaces with existing safety and redundant devices, such as light curtains, safety gate switches, safety switches, drives, relays, motors, robots and controls.

GateMaster™ Functionality

The package contains the basic safety logic functions for reliably isolating the output power from motion-causing devices, through redundant contactors or safety relays. The power is removed on command, either through safety interlock devices or key-locked gateboxes.

Results

The new GateMaster™ system will reduce the size and cost of control systems for complex perimeter guarding installations and will improve their productivity and availability. With the GateMaster™ system, many routine maintenance procedures can be accomplished more quickly, by reducing the need for time-consuming lockout/tagout procedures.

Increased Safety and Profits

Already, a major manufacturer is implementing new safety perimeter guarding solutions in their plants to improve on traditional lockout and tagout procedures. These plants have achieved significant production savings - decreasing direct labor by 12 man-minutes per product - as well as improving safety. Both direct and indirect labor have been reduced by 0.1 hours and throughput has been increased by 5 products per hour which translates into a saving of millions of dollars per year.

The GateMaster™ System shown is designed to meet ANSI B11.20 for a manufacturing system cell and meets the intent of customer standards such as GM's DHS 2.0 for health and safety. Other versions are also available.

Other Safety System Solutions

In addition to the GateMaster™ System, hardwired GIS, (Grounded Isolation Systems) are also available through Rockwell Automation. These systems provide reliability, fulfill lockout tagout requirements and isolate/remove power by automatically using remote lockout switches without wear to the disconnect switches. The GIS systems are listed per UL508, carry TUV Reinland verification of FMEA, are CE marked and are TUV Reinland certified to meet IEC 954, category 4.

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Americas Headquarters, 1201 South Second Street, Milwaukee, WI 53204, USA, Tel: (1) 414 382-2000, Fax: (1) 414 382-4444
European Headquarters SA/NV, avenue Hermann Debroux, 46, 1160 Brussels, Belgium, Tel: (32) 2 863 06 00, Fax: (32) 2 863 06 40
Asia Pacific Headquarters, 27/F Citicorp Centre, 18 Whitfield Road, Causeway Bay, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

