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# World Class Gas & Flame

There is a continuous demand in today's competitive business world for complex manufacturing processes that increase productivity and improve quality, while also reducing costs. In hazardous industry environments, these complex processes require highly reliable safety monitoring to protect people, equipment and plants. General Monitors is the safety systems solution provider that you can trust. Our mission is to improve workplace safety through hazard reduction, which benefits our customers by improving loss prevention strategies.

# Superior Performance and Reliability

The systems experts at General Monitors offer total safety system solutions. It is a complete and scaleable package, which combines highly intelligent control and communications; advanced combustible and toxic gas detection, as well as flame sensing; plus fire alarm and fire suppression capabilities. With an installed base of customers around the globe in the most demanding industries, the General Monitors Systems Group offers an unmatched record for safety and loss prevention. We design systems with a modular, flexible approach for superior monitoring, diagnostics, alarming and event recording.

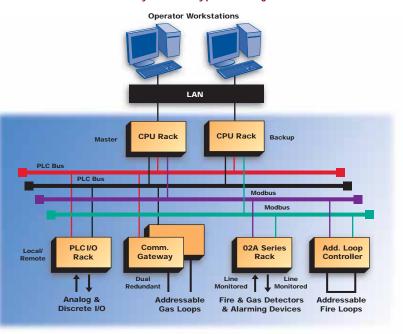
# Single Point Of Responsibility

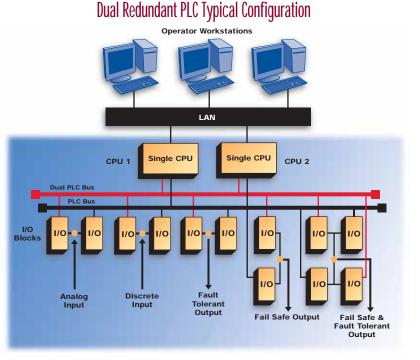
We offer a single-point-of-responsibility, while providing all services – system definition, engineering, implementation, start-up, approvals, training and maintenance. The engineers within our Systems Group provide in-depth systems design and field experience. They offer the benefits of lessons learned in the toughest industrial environments, which adds built-in system integrity with every new customer installation.

# Safe and Dependable

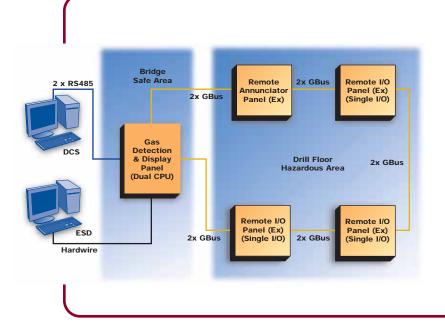
When you select General Monitors as your partner, we value your faith in us. We are dedicated to the protection of your people and plant. You can count on us to get the job done right.

Hot-Standby CPU PLC Typical Configuration





# Total Safety Solutions

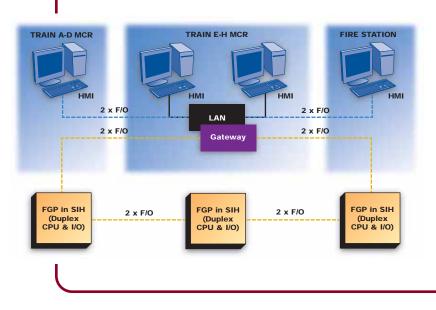


#### Hot-Standby CPU PLC: Unmanned Oil Rig

- > Customer: Unmanned Oil Drilling Rig
- > Location: South China Sea
- > Equipment: 30 Points Of Combustible Gas Detection (IR Point Sensors)

#### > Description:

- Unmanned drilling rig
- Hot-Standby CPU PLC Control System
- Centralized CPUs are connected to remote I/O via fault-tolerant, high-speed serial network
- PLCs provide both local and remote gas detection capabilities
- RS485 link to platform DCS delivers consolidated gas detection system status for DCS monitoring
- Hardwired links to platform safety instrumented system provide control signals for platform ESD



### **Dual Redundant PLC: LNG Facility**

- > Customer: Liquid Natural Gas Facility
- > Location: Asia
- > Equipment: 77 gas and flame sensors, plus 150 related field devices
- > Description:
  - Control system is Dual Redundant PLC configuration with TUV SIL3
  - PLC provides local & remote gas/flame monitoring logics
  - Integrated HMI provides facility-wide monitoring of alarms at multiple locations
  - Redundant HMI database servers support uninterrupted alarm/fault monitoring/logging
  - Hardwired links to ESD system provide control signals for process/plant shutdown

# **Turn-Key Design Through**

# **Typical System Configurations**

Hardwired Systems from General Monitors are ideal for smaller applications, combining our detectors, communication cards and card-based controllers with all indicators and alarms on a front panel for easy operator interface and simple equipment maintenance. If there is an alarm event, workers can quickly and easily diagnose the problem.

For larger applications, PLC-Based Systems provide cost-effective flexible gas and flame detection solutions. These systems offer advanced system diagnostics using a flexible networked environment and in many cases are installed with considerable installation cost savings when compared to larger hardwired systems. General Monitors has PLC-based systems installed in major plants in multiple industries around the globe (see previous page for examples).

Our Addressable Systems, which typically include industry standard programmable logic controllers integrated with UL listed fire alarm panels, offer broad design flexibility to combine UL listed and NFPA 72 compliant fire alarm equipment with state-of-the-art gas detection equipment. These "combined" sub-systems provide superior alarm monitoring capabilities and dramatically reduce system installation costs.

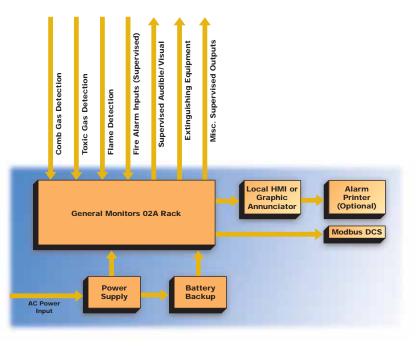
# High Quality, Intelligent Components

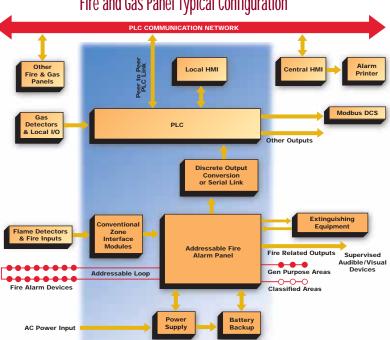
General Monitors is an ISO9001:2000 company dedicated to improving all processes continuously. Our systems utilize the highest quality components with intelligent RS-485 MODBUS and HART® capabilities in a wide variety of configurations, including dual and triple redundant systems:

- > Operator Work Stations > Gas Detectors
- > DCS & PLC Controllers > Flame Detectors
- > Networking MODBUS > Alarms, Horns, compatible
- > Event Log Recorders
- > Trip Amplifiers & Controllers
- > Special Hazards Extinguishing

Beacons

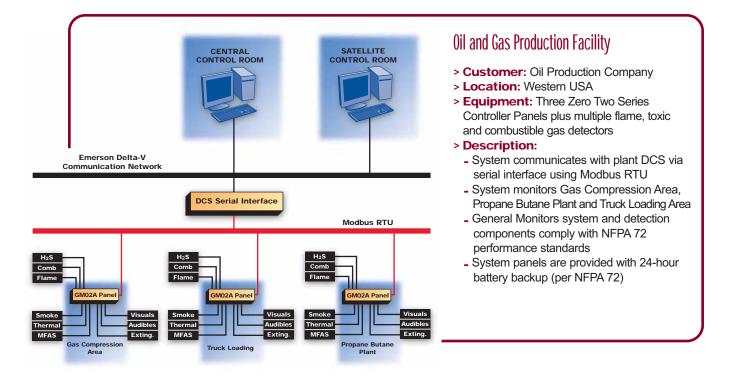
Hard Wire System Typical Configuration

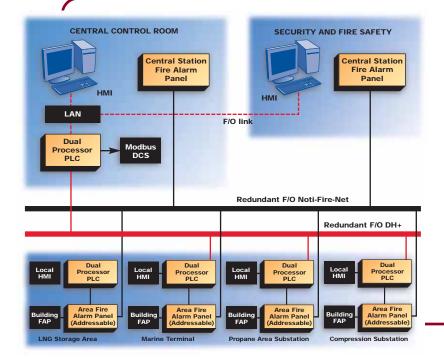




Fire and Gas Panel Typical Configuration

# Installation Services





#### LNG Liquefaction and Marine Terminal

- > Customer: LNG producer
- > Location: Middle East
- > Equipment: General Monitors Fire & Gas Panel System with multiple points of gas and flame detection utilizing point and open path IR detectors, as well as UV/IR and DFIR flame detectors

#### > Description:

- System covers LNG Storage Area, Marine Terminal, Propane Area Substation and Compressor Substation
- Gas detection and machine controls are Allen Bradley PLC 5 and SLC500 PLC with redundant processors
- Fire alarm is Notifier NFS-640 addressable fire alarm panels with Noti-Fire-Net

# Over 45 Years Record of



Our steadfast 45-year-plus commitment to protecting people, equipment and facilities in hazardous environments around the globe has made the General Monitors' name synonymous with safety and reliability. Since the company's founding in 1961, our focus on providing total solutions has made us a leader in monitoring combustible, toxic and flammable environments.

The General Monitors Systems Group today offers the industry's most comprehensive suite of answers to the continuous need for making safety systems a first priority in a wide range of industries:

- > Chemical
- > Fertilizer > Food & Beverage
- > Oil/Gas > Electric Power > Automotive
- > Pulp/Paper > Aerospace

## Systems Integration Expertise

With our large and diverse installed customer base, the General Monitors Systems Group provides the safety monitoring systems expertise and single-pointof-responsibility necessary to manage the most

challenging application environments.

# Zero Two Series

The Zero Two Series Modular Controller is ideal for a wide range of safety monitoring systems applications, such as oil/gas production, petrochemical refining and more. It monitors any combination of combustible gases, flame, toxic gases and oxygen deficiency.

We're a local resource too, with facilities in the Americas, Europe, Asia and the

Middle East, which ensures in-depth experience with global certifications and operating regulations. When it comes to safety systems -- no matter your location -- we offer the full range of integration services to our customers:

- > Training Consulting
- > Engineering > CAD Modeling Purchasing
- Installation > System
  - Start-up
- Manufacturing

# Industrial Safety

### **Total System Solutions**

From single-point gas or flame detection to large distributed multi-point systems, the General Monitors Systems Group delivers the industry's most advanced gas and flame monitoring technologies. In addition to performance and reliability, our safety systems offer low maintenance and long life. The result is superior, cost-effective protection based on our sensing expertise in:

- > Point IR
- > Electrochemical Cell
- > Open Path IR> Catalytic Bead
- > UV/IR and MSIR> MOS Semiconductor
- > Ultrasonic

## **Advanced Engineering**

Our advanced R&D group as well as Engineering group continue to develop new and superior methods of detecting hazardous gases, vapors and fires. Accuracy, reliability, robustness and ease-of-use are always uppermost in the design of all our systems and system components.

### Certifications

- > ATEX
- > BV Marine
- > FM > NEC

> ISA

> SIL

> UL

CE-Marking
GOST
NFPA 72
EN61779-1/-4
IEC
VNIIPO

> CSA

Quality Systems

The responsibility for achieving our mission is demonstrated by our commitment to ISO9001:2000 Quality Management. This effort ensures that our products, systems, processes and services meet or exceed our internal company standards and external customer expectations for quality in all we do.

## Protection for Life

Protection for life is more than a slogan at General Monitors. These few words represent our total corporate mission. We recognize the importance of protecting people in hazardous places -- because we know each person is a valued colleague, friend, spouse, parent and much more.

#### FL4000 Flame Detector

The FL4000 multi-spectral infrared (MSIR) flame detector provides superior false alarm immunity with the widest field of view utilizing neural network technology (NNT).

#### S4000 / S4100 Gas Detector Series

The Intelligent Combustible and H<sub>2</sub>S Gas Detectors feature a microprocessor-based design combined with reliable gas sensing technology.



**IR400 Hydrocarbon Gas Detector** The IR400 Infrared Point Detector features a fail-to-safe operation design to detect combustible gases within the lower explosive limit (LEL).

FL3100 Series Flame Detectors

The FL3100 Series UV, UV/IR and DFIR Flame Detectors offer continuous optical path monitoring (COPM) and digital frequency analysis (DFA).



#### **TS Series Toxic Gas Detectors**

The TS Series Toxic Gas Detectors monitor eleven different hazardous gases with a modular design developed with electrochemical cell sensors.

#### IR5000 Open Path Gas Detector

The IR5000 Open Path Hydrocarbon Gas Monitoring System with single beam sensing ensures accuracy and eliminates drift and false alarms.

#### Gassonic Ultrasonic Gas Leak Detectors

Gassonic ultrasonic gas leak detectors offer fast detection of high pressure gas leaks without requiring the gas to come into contact with the detector.





# Global Service.

# Anytime, Anywhere.



## **Responsive**, **Expert Service**

No matter where you are, 24-hour technical service and support is available from General Monitors. Our two manufacturing and six sales and service facilities are located for efficient support worldwide.

## **Quality Commitment**

General Monitors brings a respected reputation for quality and reliability to the gas and flame detector market. We are ISO 9001:2000 certified, utilizing continuous process improvement quality programs.





#### www.gmsystemsgroup.com

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