

Safety Instrumented *Fire & Gas System*



FGS1400 Fire & Gas Alarm & Control System

Life Safety Solutions

aeSolutions' next generation of fire and gas alarm and control solutions for the industrial market has arrived. The FGS 1400 MK II combines the required functionality into the latest generation of TÜV-certified safety PLC.

The FGS 1400 MK II was designed to the same levels of safety availability and reliability as the systems that the company designs for Safety Instrumented Systems (SIS). By using the latest generation of a SIL 3 safety-certified PLC as the logic solver, the FGS 1400 MK II provides the same demanding levels of performance required by the ISA and IEC safety standards for safety critical applications.



While not all fire and gas systems (FGS) are required to conform to the safety standards, wise users recognize the benefits of such a high-reliability system even for lower-risk applications.

A critical component of the FGS 1400 MK II is an FM-approved secondary power supply system consisting of a charger panel and an associated self-contained battery system. To support system design, aeSolutions has developed an FM-approved battery sizing tool which confirms the battery system design based on the specific requirements of each application.

By using the same hardware / software platform as the Siemens Simatic PCS7 series, the FGS 1400 MK II can be integrated into the entire plant system solution. It offers the advantages of common HMIs, spare parts, training, engineering / configuration tools, maintenance, and procedures to produce a dramatic saving in both installed cost as well as lifecycle costs.

Fire System Monitoring & Control

The FGS 1400 MK II has been FM-approved to be in conformance with the requirements of NFPA 72 and FM 3010 standard for fire alarming and mitigation control. The system has approval for either simplex or redundant processors, a variety of I/O configurations including remote I/O, and a battery back-up/charger subsystem.

Gas Monitoring and Control

The FGS 1400 MK II has also been FM-approved to be in conformance with FM Approval's Combustible Gas Standard 6320, Toxic Gas Detection Standard 6340 and ANSI/ISA 12.13.01 Performance Requirements for Combustible Gas Detectors standard.

Other members of the Life Safety Systems™ family of products have been developed by aeSolutions to bring highly reliable and cost-effective SIS solutions to market for a wide variety of fired equipment Safety Instrumented – Burner Management System™ applications.

aeSolutions can provide a turnkey solution from philosophy to field installation.

Features

The FGS 1400 MK II Safety Instrumented Fire & Gas System is a pre-engineered, pre-configured and pre-packaged system that is suitable for a wide variety of applications and is available as a turnkey solution.

- A complete turnkey Safety Instrumented Fire & Gas System that is FM-Approved to be compliant with NFPA 72 (2013 Edition) and FM 3010 standard for both fire and gas monitoring in the same safety PLC
- Developed around the Siemens Simatic S7-400F Series Safety PLC platform
- Supports simplex I/O and either simplex or redundant processors: offers a remote I/O option
- Based upon a TÜV-approved SIL 3 rated Safety PLC
- The system includes interface capability to a wide variety of sensors and final control elements with fully supervised circuits (IDC, NAC, FSF, and SDC)
- Designed to levels of reliability and availability commensurate with national safety standards for Safety Instrumented Systems
- Communication to control systems via Profibus, Industrial Ethernet, hardwired I/O, or Modbus
- FGS 1400 MK II includes a complete battery backup system with charger
- No on-site programming required
- The FGS 1400 MK II has 3 operator interface options: 12" TP1200 Touch Panel (TIA Portal); 15" PC677 Operator Interface (PCS7); PC BOX840 PC with 21" Vartech Monitor (PCS7)
- Powerful engineering workstation incorporating cause and effect alarm configuration and display using Siemens' Cause and Effect Safety Matrix

Field Device Options

- Manual pull stations
- Heat & smoke detectors
- Temperature rate-of-rise sensors
- Toxic gas detectors
- Combustible gas detectors
- Suppression subsystems
- Local alarm horn / beacon
- Environmental protection
- Host communication capability
- IR fire detectors
- Multi-spectrum fire detectors

System Integration Options

aeSolutions' qualified engineers can apply years of fire & gas system expertise to provide:

- A complete single-source turnkey solution for the optimum FGS 1400 MK II solution
- Implementation of all phases of design, fabrication, configuration, and documentation
- System verification and validation including factory acceptance, integration, and client acceptance testing
- Training at both the engineering and technician levels
- Commissioning and startup support

System Specifications

Processor:	Siemens Simatic S7-400F Series with redundant processor option
I/O:	Both analog and discrete supervised circuits and remote I/O option
Inputs/Outputs:	Application-dependent
SIL:	Design based upon SIL 3-rated components for Fire & Gas circuits
Power Supply:	PS1400-50-600: 50 Amp 24VDC Output Nominal; 115/230 VAC Input/600 Amp Hour Battery Backup. PS1400-100-1200: 100 Amp 24VDC Output Nominal; 115/230 VAC Input/1200 Amp Hour Battery Backup. PS1400-150-1800: 150 Amp 24VDC Output Nominal; 208/240/480 VAC input/1800 amp hour battery set. Optional Rack assembly to stack charger and battery set.
Temperature:	Operating: 0 to 50 Deg C. Storage: -40 to 60 Deg C
Humidity:	Operating: 0 to 95% non-condensing
Cabinet:	Nema 4, 4X, 12, powder coated or stainless steel; size is application-dependent
Area Class.:	General purpose or Class 1 Div 2
Weight:	Application-dependent
Certifications:	FM-Approved for compliance with NFPA 72 and FM 3010 for both Fire & Gas; FM Approval's Combustible Gas Standard 6320, Toxic Gas Detection Standard 6340 and ANSI/ISA 12.13.01 Performance Requirements for Combustible Gas Detectors standard.
Initiating Device Circuits:	Class A & B for discrete dry contact IDCs; Class B for Analog IDCs.
Notification Appliance Circuits:	Class B

