

# Safety Instrumented *Fire & Gas System*

Process Control • Process Safety • Engineering

## Life Safety Solutions FGS 1400 MK II

AE Solutions' next generation of fire and gas alarm and control solutions for the industrial market has arrived. The FGS 1400 MK II combines all of 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 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, AE Solutions 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 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 AE Solutions to bring highly reliable and cost-effective SIS solutions to market for a wide variety of fired equipment Safety Instrumented Burner Management System™ applications.



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.

## Features Of The FGS 1400 MK II

- A complete turnkey Safety Instrumented Fire & Gas System that is FM-Approved to be compliant with NFPA 72 (2007 Edition) 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 and 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 (SIS)
- Communication to control systems via Profibus, Industrial Ethernet, hardwired I/O or Modbus
- FGS 1400 MK II includes a complete battery back-up system with charger
- No on-site programming required
- The FGS1400 MK II has 3 operator interface options: 10" MP277 Touch Panel (Winn-CC Flex); 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™

## 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 12 Gauge 12, powder coated; size is application-dependent
- **Area Classification:** General Purpose
- **Weight:** Application-dependent
- **Certifications:** FM-Approved for compliance with NFPA 72 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

## Field Device Options

- 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

AE Solutions' 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 start-up support

