



AUTRONICA

United Technologies

AutroSafe Integrated Fire and Gas detection system

AUTROSAFE IFG

Integrated fire and gas detection system



RETROCHEMICAL
OIL AND GAS



A NATURAL CHOICE

AutroSafe IFG Integrated Fire and Gas (IFG) provides a totally integrated addressable solution for fire and gas detection in the oil and gas industry. From offshore platforms to LNG plants to refineries, AutroSafe IFG delivers the most rigorous F&G safety to date.

We launched AutroSafe IFG in 1999. From day one, it has proven its unique stability and reliability, and is now protecting more than 15 000 installations worldwide, both on and offshore. AutroSafe IFG provides reliable, easily extensible, cost-effective detection of hazardous fire and gas with advanced functionality for a wide range of applications.

We have invested our resources into developing a system which meets the demands of the oil and gas industry throughout the world. Our efforts have delivered: AutroSafe IFG is the only system with full IEC 61508 SIL2 (Safety Integrity Level 2) system approval. The system is also conforming to EN 54, NFPA 72 and bearing many other international standard approvals. AutroSafe IFG meets the highest requirements of NFPA, including class X

signalling line circuits and enviable approved temperature ratings of -20°C to +70°C for many devices.

Smart technology reduces maintenance and operation cost and prolongs the life cycle of the system drastically, while at the same time providing unparalleled protection and eliminating false alarms.

A natural choice for the most critical industries

APPLICATIONS

Because AutoSafe IFG is certified and extensible, the applications to which it is suited are numerous. Modular design allows AutoSafe IFG to be adapted precisely to the conditions at hand; an AutoSafe IFG system provides the best solution for the given situation.

The expert team from our Petrochemical, oil & gas division has wide-ranging experience executing projects in the petrochemical, oil and gas industry; buying an AutoSafe IFG system also means that the customer receives a technically advanced system, designed and supported by experienced and qualified engineers.

Some examples of applications protected by AutoSafe IFG:



FPSOs

Jack-up Rigs

FSOs

Drillships

Offshore wind farms

LNG plants

Semi Submersible Rigs

Offshore production platforms

Fertilizer plants

Petrochemical plants

Refineries

Gas compressor stations

THIS IS AUTROSAFE IFG

Large capacity without compromising security.

AutoSafe IFG is a network-distributed system, information is routed to panels throughout a network system. Fully functional panels and controllers allow detector loops to be placed around the network, reducing cabling costs by eliminating cable-runs back to the central alarm panel. Addressability ensures that correct information is routed to where it is needed, indicating which detection unit has given the alarm; built-in fault monitoring ensures that if a detection unit fail, it is automatically identified and can be replaced with a minimum of effort.

AutoSafe IFG systems are managed through a single point of operation for the download of configuration data and software upgrades. This ensures a faster and safer method to change or upgrade the system program, using the panel network (AutoNet) or a USB memory stick. The result is minimum downtime, through quick and easy modifications during commissioning and maintenance.

Clean design and performance

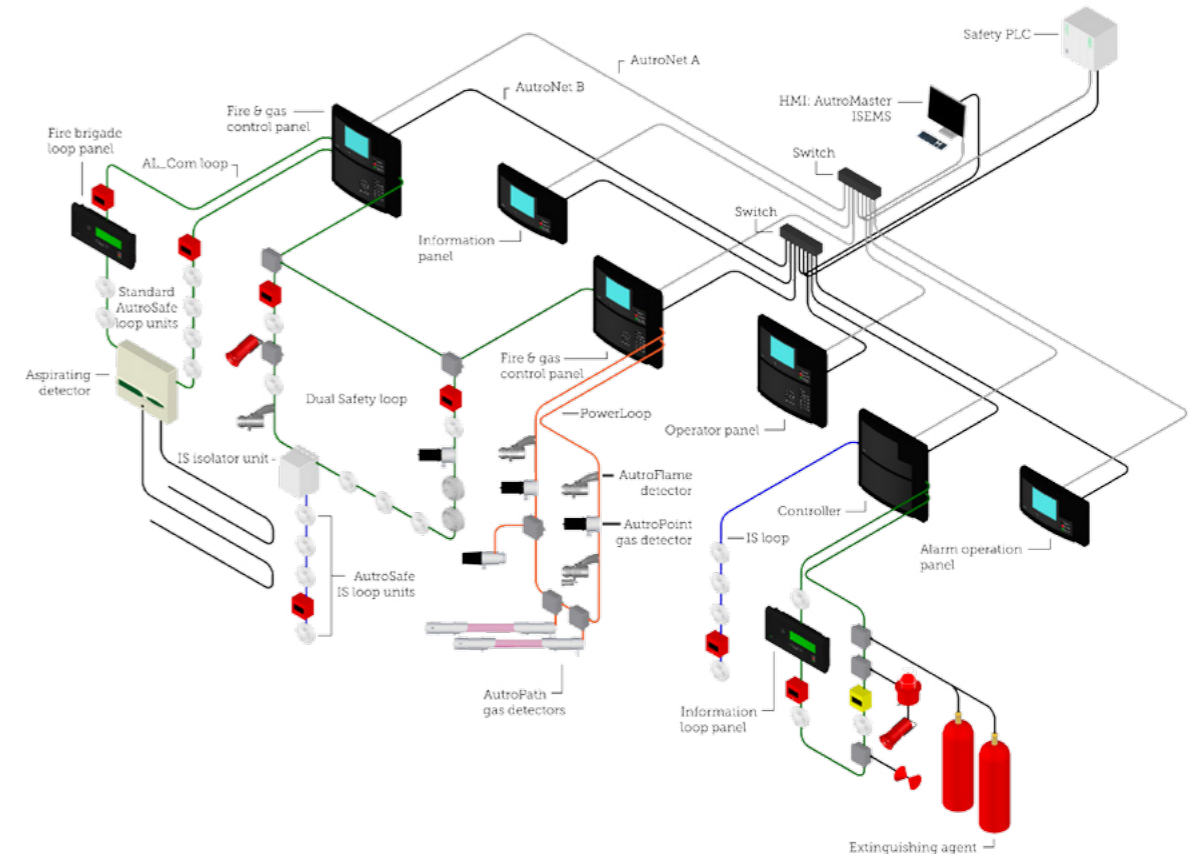
During normal operation, the power indicator will always display a steady green light when the power is ON. No disrupting or unnecessary information is shown, only indicators relevant to the actual condition are visible.

Adjustable to any environment

Installed everywhere from the Alaskan tundra to the deserts of Qatar, AutoSafe IFG provides world class flexibility. Because AutoSafe IFG is scalable and modular, units can be replaced and added simply and easily. Our service and configuration tools make these tasks even easier, reducing time and cost.

Proven loop units

All types and series of AutoSafe IFG detectors, manual call points, I/O units and sounders can operate on the same detection loop. We also offer low-power detection loop panels, which eases installation and provides flexibility.



Integrated 3rd party interface

Granting unlimited communication options, AutoSafe IFG is class leading in integration capability.

AutoSafe IFG communicates with equipment using the following protocols:

- v MODBUS – allowing connectivity with Programmable Logic Controllers (PLCs)
- v ASAP – allowing connectivity to top systems when upgrading from old Autronica systems
- v AutoCom – allowing interface to control and monitoring systems, including AutoMaster as well as multiple DCA manufacturers
- v ESPA 4.4.4 – allowing connectivity with devices such as alarm routing via telephone networks and pocket paging systems
- v NMEA-0183 – allowing connectivity with devices such as the maritime Voyage Data Recorder (VDR)

System capacity

- v 64 fire and gas alarm panels for each domain
- v 15 000 loop units connected to one system
- v 6 detector loops per panel
- v 127 loop units connected to one detector loop
- v 15 loop units connected to one PowerLoop
- v 31 loop units connected to AutoFieldBus
- v Event log with up to 10 000 events
- v 8 loop panels per loop



FROM SAFE TO DUAL SAFETY – TO DUAL CPU

Introducing AutoKeepers that provide dual reporting of events

Our Dual Safety technology enables redundant control of the detection loop. If, by any reason, the primary loop control fails, the secondary loop control will take over, and detection is thus maintained.

At the basic level, the sensor units are connected in two-wired loops. Consequently, in case of a single broken or shorted loop, connection with all units is maintained. Additionally, two patented AutoKeeper units per loop make redundant control of the loop possible. This is particularly important since, should the primary loop controlling panel fail, the secondary backup panel will take control of the loop.

The AutoKeeper makes it possible to communicate with loop units using a secondary panel in addition to the primary one. This ensures that an alarm event is not lost in case of system node or network failure.

Redundancy is achieved without introducing two set of detection loops, and thus avoiding twice the amount of cabling and detectors.

Our Dual CPU uses Dual Safety in a coordinated fashion. It will switch all loops simultaneously. This is a superior dual CPU solution, as it is not sensitive to failures in power supply to the system or geographic location. The secondary side runs as “hot standby”

The Dual Safety concept is IEC61508 SIL 2 approved.

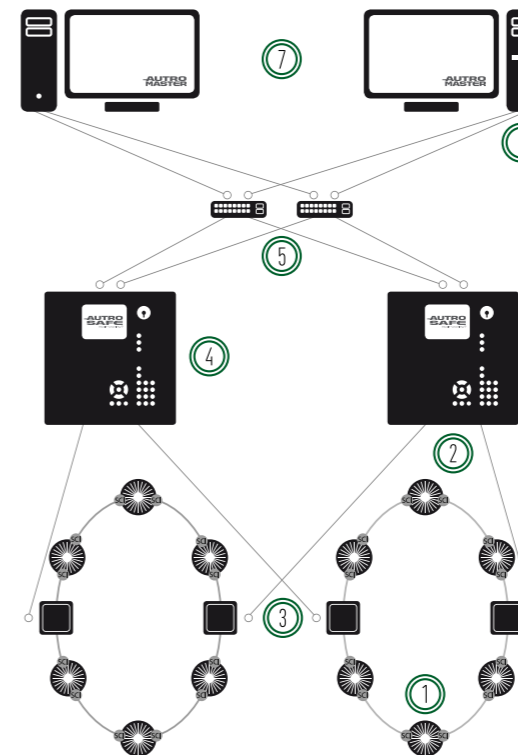
7 TIMES DUAL

We give you

1. Dual SCI – all loop units have integral dual short-circuit isolators. No need for extra loop units.
2. Dual loop communication – loops are powered both ways – ensuring redundant loop network.

Additionally you can expand the safety even further with:

3. Dual Safety – two AutoKeepers ensure that no events are lost in case of system node or network failure - dual control.
4. Dual CPU – synchronized option of Dual Safety (all loops)
5. Dual network between system units – AutoNet redundant communication in star or ring topology
6. Dual top system communication – AutoCom to process control systems
7. Dual HMI – e.g. AutoMaster



Should one panel fail due to a fire & gas incident, the other will maintain control.



More reliable maintenance.
Far less time and cost.



SMART TECHNOLOGY

Improving safety, reducing maintenance costs and prolonging system life cycle.

The necessity of reducing high maintenance costs and increasing fire security, encouraged us to invest considerable time and effort in developing this unique technology.

The self-testing system

Most fire detection systems depend on costly and often irregular manual inspections, which involve a number of challenges and problems:

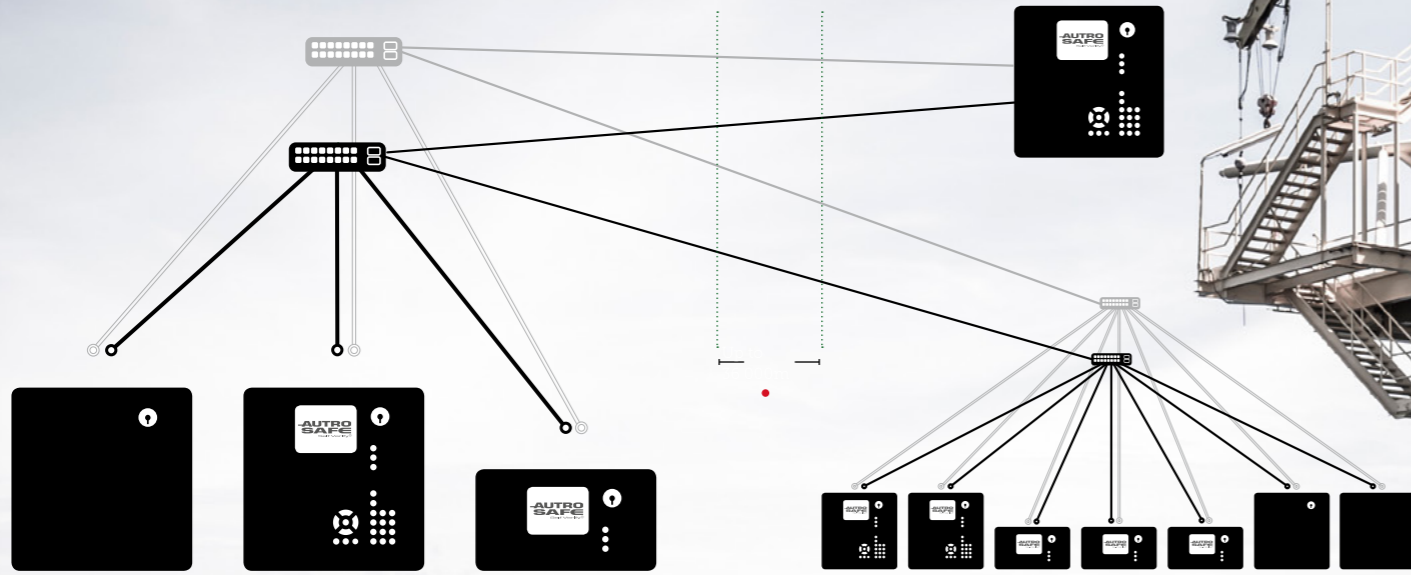
- v Detectors may be out of reach
- v Service engineers may not have access to particular areas
- v Manual testing with gas or smoke is not reliable
- v Test gas or smoke is rarely used in calibrated quantities
- v Test gas reduces the life-cycle of the detectors
- v Even a faulty detector will eventually react if its chamber is filled with enough smoke
- v Excessive and irregular intervals between manual tests of detectors, leaving damaged detectors unnoticed for far too long

AutroSafe SelfVerify® solves all issues of manual maintenance, rendering time consuming and costly physical testing unnecessary. With AutroSafe SelfVerify®, the system checks all detectors, interfaces, connections and cables – from detector chamber to alarm output – every single day.

DYFI+

DYFI+ and smart algorithms ensures that AutroSafe IFG detectors are capable of recognizing real fire scenarios, eliminating unwanted alarms and providing the earliest possible warning by compensating for contamination from dust and recognizing unwanted alarm sources.

Dual path
Twice as secure



Longer distances than 100 m will require extra equipment depending on infrastructure.



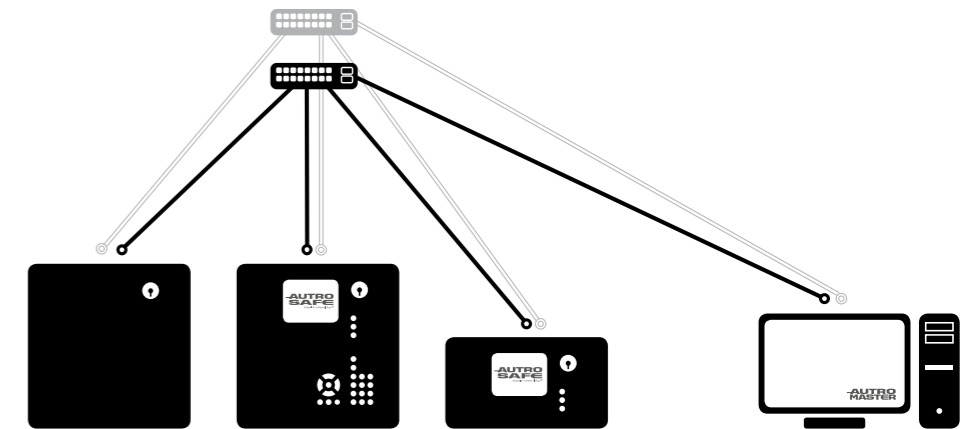
AUTROMASTER

AutoSafe IFG integrates available technologies into one complete system, opening up the possibility to monitor and control the system from one single operator station: the AutoMaster.

This remote-monitoring and control system provides tight integration with AutoSafe IFG systems, indicating fire and gas alarms, and customized layout of installations with symbolic representations of field devices. The system also features advanced trending functionality; online, live video from CCTV-equipped flame detectors; manual activation of outputs; maintenance and troubleshooting tools; historical log. The system is connected to AutoSafe IFG via ethernet, and can be networked allowing multiple clients to display duplicates of a central AutoMaster server.

Training simulator

Combining AutoSafe with AutoSim simulator tool and AutoMaster, you can now build a training facility which replicates the real-life installation. From the comfort of dry land, far from any real fire and gas hazards, you can tailor your own safety routines and practice them as a part of the mandatory safety training for all personnel.



Flexible and reliable
– easy to maintain, modify
and expand.

AUTRONET

Reliable communication is paramount to your safety.

To provide maximum dependability, we have developed AutoNet – a dual path transmission network based on a high bandwidth Ethernet network (100Mbps) suitable for safety critical systems. AutoNet secures the transmission of data and information even if a line fault (break, switch port fault etc.) is present. Alarms are transmitted safely to all panels because all network traffic is duplicated along two independent network paths.

The unique combination of AutoNet and AutoSafe IFG results in a flexible and reliable system which is easy to maintain, modify and expand.