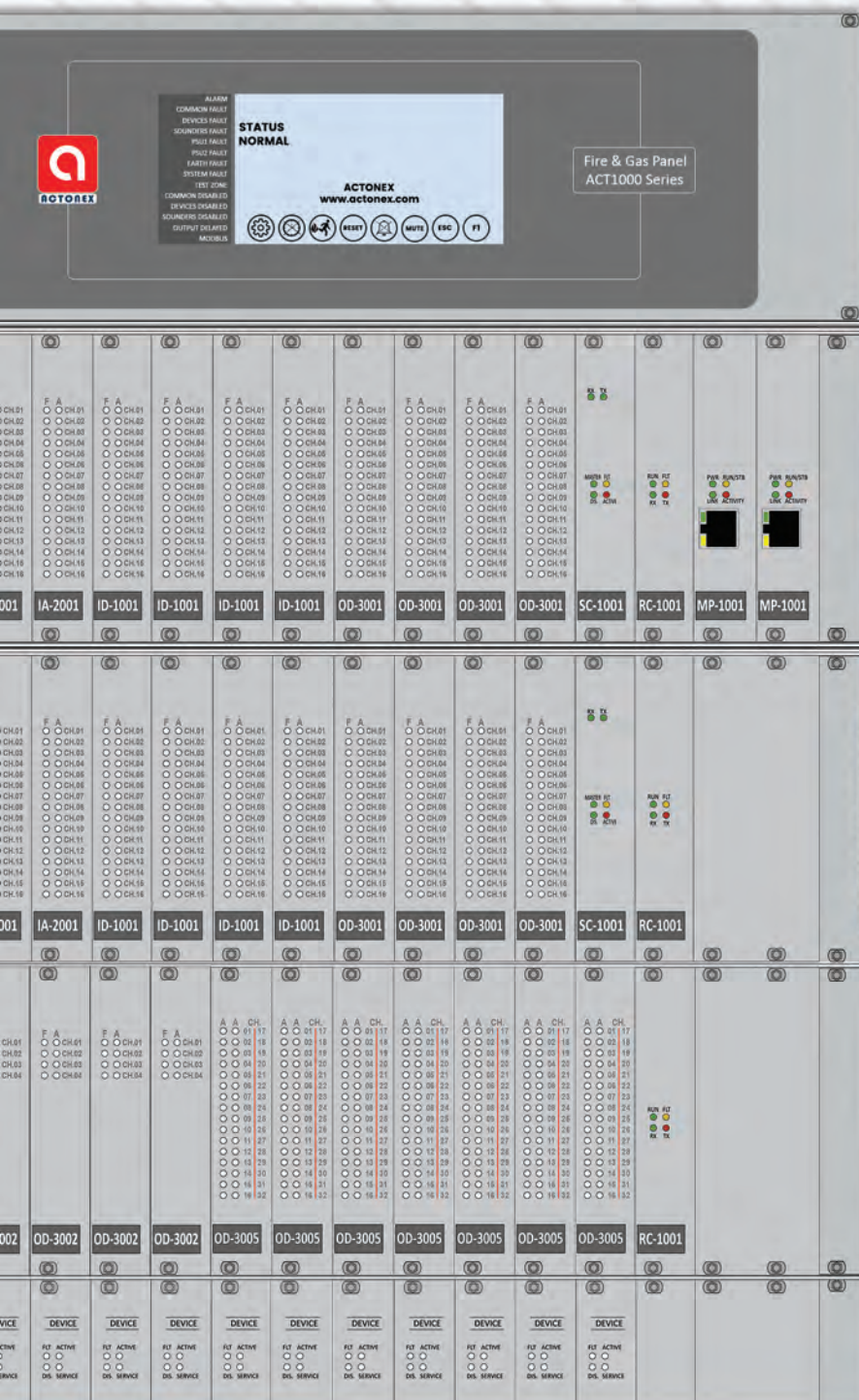


ACTONEX

SAFETY INTEGRATED SYSTEM



IEC 61508

SIL2 & SIL3

Certified



www.actonex.com

ACTONEX: is designer and manufacturer of Automated F&G Systems.

At ACTONEX, we specialize in designing and manufacturing cutting-edge automated safety solutions. Our every action, thought, and creation is driven by one core objective: ensuring your safety. This philosophy results in solutions that not only maximize safety but also ensure uninterrupted plant operations.

Key benefits of ACTONEX solutions include:

- Optimal system sizing, preventing over dimensioning
- Maximized plant uptime
- Lower investment and lifecycle costs
- High flexibility across the system's lifetime
- Exceptional ease of use

Integration with DCS & ESD Systems

ACTONEX solutions are fully compatible with all leading Distributed Control Systems (DCS) and Emergency Shut-down (ESD) systems, utilizing industrial protocols to integrate both operational and monitoring functions.



Technical Specification:

- Easily PC-configurable
- Can be managed through a supervisory program
- Can be networked with other panels
- 19" / 3U rack modular construction
- 14 card slots per rack, up to 6 racks for One main CPU
- Front plug-in/out cards
- Redundant CPU & Cards ability
- Cyclical Self-Testing
- Automatic monitoring of card and CPU fault
- Automatic and safe disabling of malfunctioning cards
- Hot swap of cards and CPU's
- High immunity to electromagnetic disturbances.
- Up to 1000 I/Os per cabinet

REFERENCE STANDARDS

- According to EN 54-2 and EN 54-4 and EN 54-13 (fire detection)
- According to IEC 61508 (functional safety)
- Certificate : **SIL2 & SIL3** (cert no.: CBF-707-08)
- EMC test approved acc. IEC 61326-3-2

Major solutions

High-availability solutions with ACTONEX guarantee safe and uninterrupted operation for every safety-critical process in your facility such as Fire & Gas systems.

Self- diagnostic

ACT-1000 system incorporates comprehensive self-diagnostics such that all permanent and transient faults are identified, alarmed, and reported. Also has Watchdog functionality to monitor the healthiness of system hardware and software.

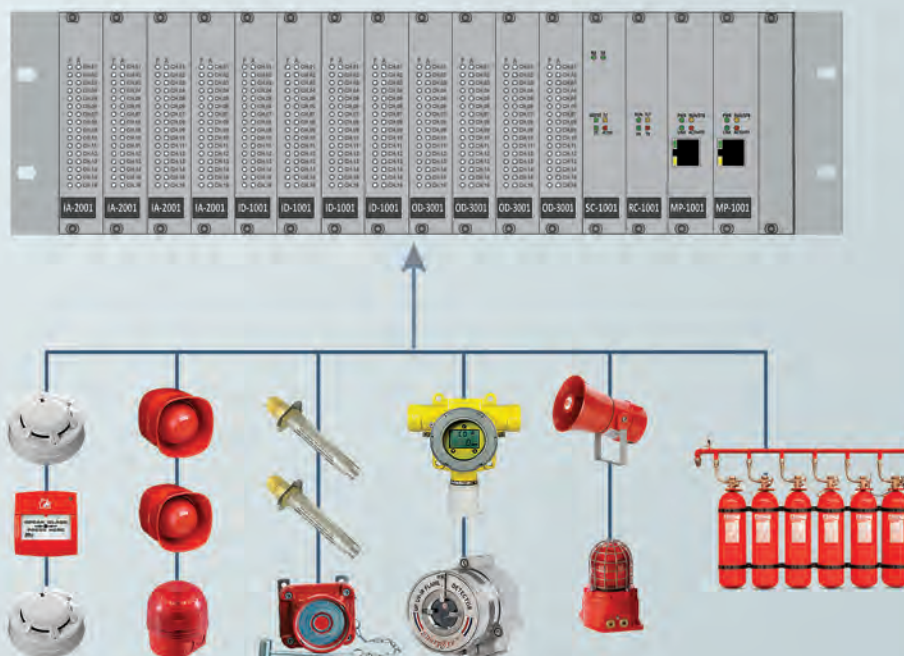
All I/O's test at a regular interval every 1 second for fault monitoring.

Fault information are available and displayed for the maintenance staff in a manner that enables fault diagnosis to the module level.

Proof test

According to IEC 61508 , every safety system must be subjected to a proof test at regular intervals. A proof test is designed to reveal any faults, so the system can be restored and fulfil its intended function. The proof test interval for ACTONEX system is 1 year.

ACTONEX controller can be subjected to a proof test by testing the entire safety circuit. In practice, a shorter testing interval (6-12 months) is required for the field unit's inputs and outputs than for the ACTONEX controller.



Nonstop safety for the process industry

ACTONEX solutions are used in the most various applications. For instance:

- Petrochemical Plants
- Oil and Gas projects
- Fertilizer plants
- Onshore/offshore facilities, platforms and FPSO
- Pipelines
- Tank Farms and Gas Containers
- Loading Stations
- Refineries
- Combustion and Power Plants
- Turbines and Compressors
- Others

The system components

Faster, more powerful, more efficient

ACTONEX defines a completely new performance category. Its power is based on high-performance system components and intelligent system architectures, including:

- High-performance ARM RISC microcontroller for fast calculations
- Processing of all field signals in the I/O modules, which means that analog values are processed at the same time as digital values.

All this produces impressive performance specifications:

- More than 1000 I/Os per cabinet
- 84 I/O Modules, in 6 racks Per system
- The cycle time for 6 racks (half analog, half digital I/Os) is just 400 ms.

The system bus module organizes the communication of all modules. The redundant bus structure has the advantage that the individual modules cannot interact.

The system bus module can be installed individually or redundantly.

General Specification

Supply voltage	24Vdc (18~30Vdc)
Input current	Up to 20A for full rack
Housing material	Aluminum
Operation temperature	0 °C to +60 °C
Storage temperature	from -5 °C to + 50 °C
Humidity	max. 95% relative humidity, non-condensing

Overview of the modules:



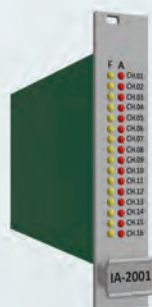
MP-1001
CPU CARD



SC-1001
MODBUS RTU CARD



RC-1001
RACK CONTROLLER CARD



IA-2001
ANALOGUE INPUT CARD-16 CH



ID-1001
DIGITAL INPUT CARD-16 CH



OD-3001
DIGITAL OUTPUT CARD-16 CH (500 mA)



OD-3002
DIGITAL OUTPUT CARD-4 CH (2A)



OD3005
OUTPUT CARD OPEN COLLECTOR-32 CH



LP-4001
ADDRESSABLE LOOP CARD (APOLLO)

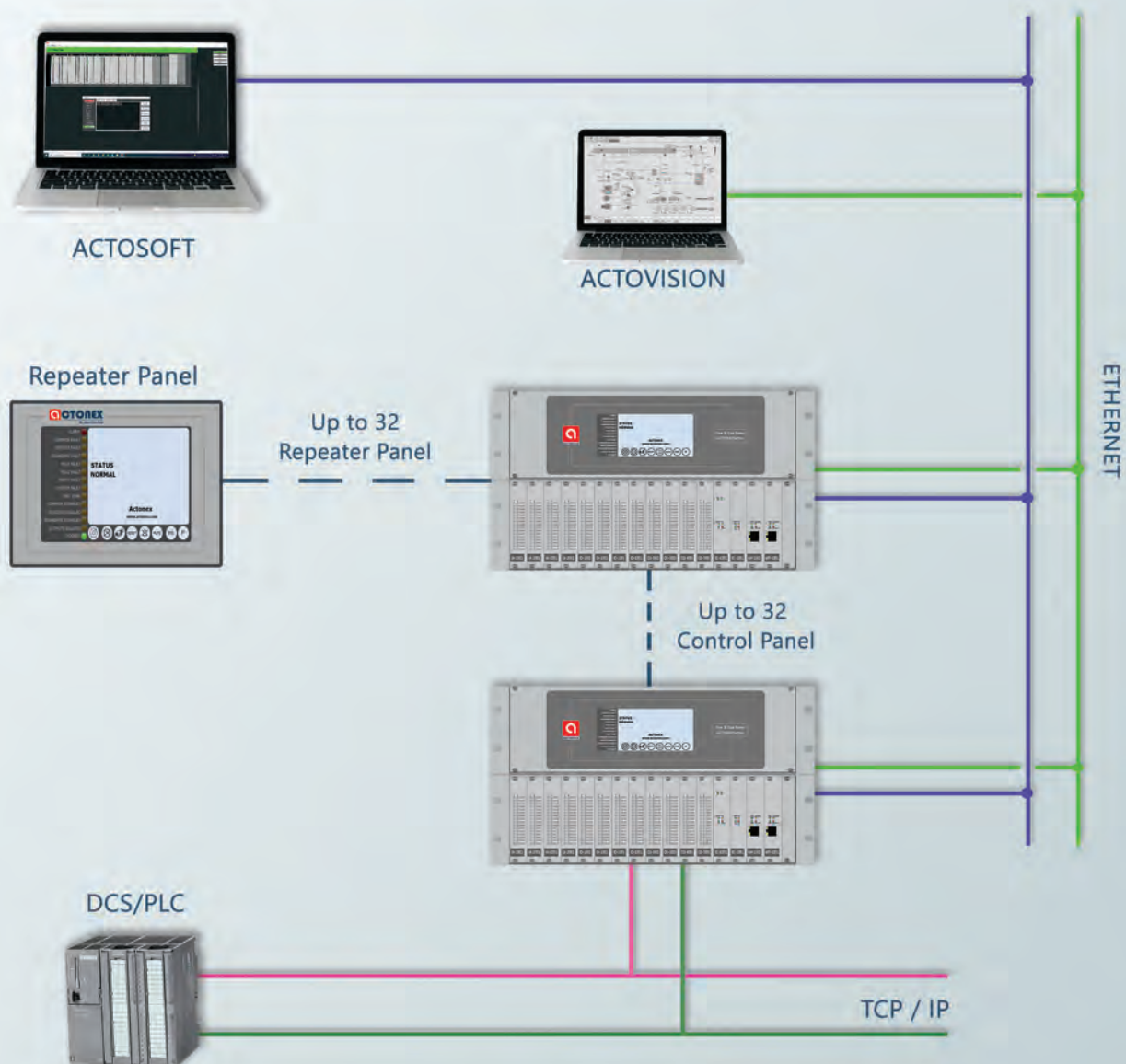


LP-4002
ADDRESSABLE LOOP CARD (HOCHIKI)

Communication

ACT-1000 System supports the following communication features:

- Master/slave Modbus RTU protocol to communicate with the upper-level panel (DCS).
- Ethernet 10/100 BaseT with RJ-45 connector to communicate with configuration tool.
- The fully integrated configuration tool provides detailed information through online diagnostics, displaying network operations in real time and helping to speed up fault detection.
- Users can manage and define monitoring software using Modbus TCP/IP communication based on their needs.

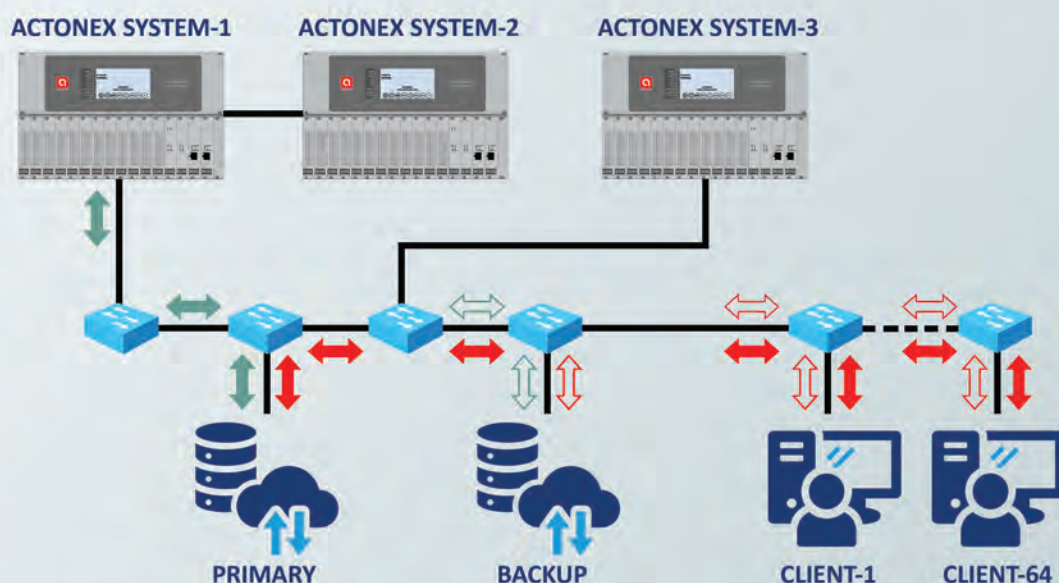


ACTOVISION - HMI Software

Actovision is a HMI program that allows computer-based event management through animation and graphic pages. Sites can consist of one or several panels. Actovision allows management of installation activity without physically moving to it. The Actovision program can be installed on one or more PCs that will connect to the fire alarm panel with a LAN Ethernet or serial line. Actovision has a simple configuration in order to adapt to the fire and gas installation requirements. From the main panel, the administrator can modify the graphic pages and the fire plant features on the map. Moreover, the administrator can decide all possible actions for each level of access and the graphic pages visible on each PC.

MAIN CHARACTERISTICS OF THE SOFTWARE

- Runs on Windows operating system
- Access and configuration via dongle USB
- Graphical maps in bitmap (bmp, jpg, etc.)
- Event log filter to view and export data
- Connection to other panels via Ethernet LAN or Serial Link
- Import names and entities from the central zone
- Manual Online



Legend for Figure

Arrow	Description
	Communication path between the primary server and the Actonex Panel Safety
	Communication path between the backup server and the Actonex Panel Safety
	Communication path between the active client and the primary server
	Communication path between the active client and the backup server





ACTONEX controls multiple systems into one ..!



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