Fire&Gas solutions

Safe smoke extraction and fire management – SIL 3

Part number

HIMatrix F3 DIO 16/8 01:
98 2200423

HIMatrix F3 DIO 16/8 01

I/O module for safe actuation of fire dampers and smoke extraction valves based on reliable HIMA safety technology

- → Connection of max. 8 fire dampers or 4 smoke extraction valves
- → Line monitoring of
  – drive
  – limit switches
- → Runtime monitoring
- → Open data transmission to/from building automation system or fire alarm panel or third party equipment
- → SIL 3 – TÜV certified HIMA control system and safety bus
- → Fault-tolerant network (ring architecture)

Applications/accompanying products

Application in **high-rise buildings, airports, shopping centres, hospitals, stadiums, hotels, underground car parks, underground train systems, tunnels etc.**

The I/O module is connected with a HIMA controller module via safe**ethernet.** Controller modules are: HIMatrix F60, F35, F30 or F20.

Software requirements:
ELOP II Factory, from V4.1

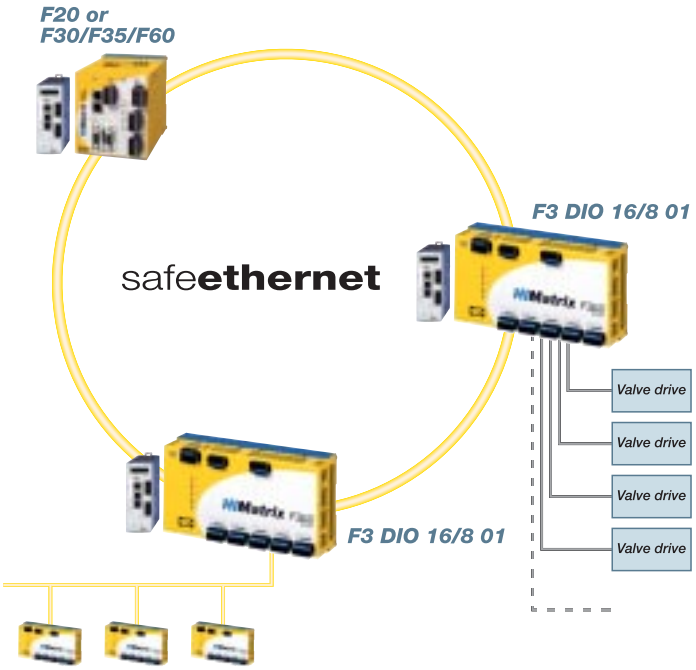
Dimensions and weight

HIMatrix F3 DIO 16/8 01
W x H x D: 205 x 114 x 88 mm
Weight: 1.3 kg

HIMA

The safe decision.

Detailed functions/advantages



- ➔ Infinitely extendable network incorporating controllers and additional application modules for complex cross application networks and safe fire management systems
- ➔ Programmable according to IEC 61131-2 with function blocks and sequential function charts
- ➔ Safe data transfer via safe**ethernet** (based on IEEE 802.3)
  Technical options: fault-tolerant ring architecture and/or fibre optics
- ➔ End to costly and fault-generating interfaces
- ➔ System response time (p2p) ≤ 10 ms

Part numbers

HIMatrix F3 DIO 16/8 01:
98 2200423

Standards/certificates

DIN EN 61508, parts 1–7

IEC 61131-2

VDMA 24200-1

(pr) EN 12101

HIMatrix is suitable for the detection of smoke and flame in accordance with EN 54-2, NFPA 72 and ATEX 94/9/EC

HIMatrix is suitable for the detection of gas in accordance with ATEX 94/9/EC

Fire retardance of safety communication network based on DIN 4102, part 12

Other applications

- ➔ Elevator, pressure ventilation, extinguishing
- ➔ Evacuation management
- ➔ Lock/unlock safety doors/gates
- ➔ Flame and gas detection (ATEX)
- ➔ Others ...

HIMA

The safe decision.

Problem and solution

➔ Safety systems in buildings are mostly controlled and actuated by automated systems. Automated controllers, especially programmable logic solvers, are always based on microprocessor and software technology.

➔ The question has to be raised how safe and reliable those automation systems can be and how their reliability can be measured. Awareness has to be created that those systems care for life safety of human beings and that their malfunction can cause peoples death and operators liability.

➔ The quality of controllers for fire and smoke fighting systems with regard to standards is at a level, which mostly does not fulfil the **criteria of "Functional Safety"!** The criteria of Functional Safety are described in DIN EN 61508. This new European standard is a uniform basis for the evaluation of safety of controller technology. Functional Safety means freedom from random and systematic failures. The focus is highly on processor, compiler and software technology which is not 100 % definable in its fail-behaviour. This is why it is necessary to create safe hardware structures and internal software diagnostics for safety-related controllers **to minimize the probability of dangerous and undetected failures.**

➔ DIN EN 61508 is a standard, which describes the basic requirements for developing, manufacturing and applying safe electrical/electronical/programmable electronic systems - E/E/PES. It describes a **"Safety life cycle" for each life phase of an E/E/PES.** Certified products according to this standard make a quantitatively statement about their reliability. Reliability of E/E/PES is expressed by failure rates from 10^{-1} to 10^{-5} (equals SIL 1 to SIL 4). SIL stands for "Safety Integrity Level".

➔ DIN EN 61508 enables safety consultants and engineers to use the described technology to fulfil their safety responsibility in high risk fire, smoke and gas applications. The technology has already been used for years in branches like stage, factory, process, automotive ...

➔ To meet the safety requirements, HIMA offers a safety-related control system, which is featuring absolute flexibility for concept and design and maximum technical reliability.

➔ **Contact:**

Thomas Burkhardt (telephone: +49 6202 709-209, E-mail: t.burkhardt@hima.com)
Klaus Wagner (telephone: +49 6202 709-128, E-mail: k.wagner@hima.com)