

Report of the EUSAS workshop on
"Automatic Fire Detection and Fire Extinguishing Systems"

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1. General

The workshop was held on December 16th-17th, 2002, at the VdS in Cologne. The topic of the workshop was introduced by the president of EUSAS, Pr. Luck. He highlighted that standards are important for ensuring a minimum quality level, but these standardisation aspects should not overrule special technical solutions. There was a short discussion with representatives of the VdS about this point. The following sessions were then conducted by Mr. Stahl from the VdS.

2. Organisation and Performance

6 technical papers were presented by experts, which all came from Germany. Four speakers were from the VdS, the others from the companies Minimax and Tyco Europe. 23 participants (including the speakers, the president and the chairman Mr. Stahl) registered for the workshop. This number was disappointingly low, possibly due to the fact that only a limited number of experts is dealing intensively with this topic in the practical work. Nevertheless the discussions, which were raised among the experts showed that the subject included a couple of important and interesting aspects. The technical contents of the papers covered mainly the topics of standardisation, approval and testing. An important outcome of the workshop was that the conclusions of these discussions will be brought to the corresponding EN TC's (by Mr. Stahl and Dr. Böke). Insofar the workshop was a very successful one, even with regard to the low number of participants.

The workshop was structured into the following sessions.

3. Sessions

State-of-the-Art and technical requirements including standardisation

Mr. Lüttenberg introduced the topic on the control of extinguishing systems by fire alarm devices and highlighted the necessities. Two different kinds of connections (a direct one and one using a standardised interface) were explained. The responsibilities in the case of two different installers were discussed then. A few but important basic requirements in order to limit the consequences of faults were mentioned. He showed up some modern system structures (according to EN54-1) and described other basic requirements concerning the triggering (EMC requirements e.g.). Another point covered the aspects of personal safety.

In the second talk Mr. Koch, as a former member of the TC191, which prepared the corresponding standard, explained it in detail and gave some examples. The full set of compulsory and the set of the optional functions concerning the Electrical Control Devices (ECD) and the automatic Fire Detection and Alarm System (FDAS) was explained with view to partly different mandatory functions in different countries such as in the U.K. and in Germany. He also discussed national regulations (such as those of France and the U.K.). The special conditions concerning the mechanical design, the indication of these conditions and the design requirements for software controlled ECD's were described. Another point of his talk covered the required redundancy concerning microprocessors in the FDAS and in the ECD.

Mrs. Schlosser then presented an overall view on gas extinguishing systems and the different gaseous agents used. The extinguishing effect with respect to different gas types, their characteristics and application areas were explained. Another part of the talk highlighted personnel safety measures (such as a delayed discharge). Some hints on special requirements on the fire detection system were given which are needed because of the high costs of false alarms. But it was also shown that a high speed of detection in such cases is not thus important. Finally some examples were given highlighting the advantages and disadvantages. The examples covered a computer room using coincidence detection, the case of an electronic equipment protection, an EDP room, a printing machine where different measures against fires in the room and in the paint baths were taken and finally the example of an electrostatic coating plant with different measures taken concerning the spraying device and the whole hall. It was highlighted that selected fire protection concepts lead to a set of possibly different protection aims which also have influences on the planning of the fire detection system.

FDS controlled and monitored extinguishing systems and interface aspects

Mr. Stahl introduced the topic of the second day. Then Dr. Böke started his talk describing two different types of systems (water and water spray systems). The need for limiting air volume in a dry pipe systems was addressed. Other versions of such systems like the pre-action sprinkler system, type A and B, were explained concerning their function during an alarm and in the case of a false alarm. The general application fields of these systems were described. There is a so-called SDI system (Simple Discharge Interface) which eases the installation in the case of two different manufacturers. Activation of water spray systems and the use of a Fire Detection System (FDS) was also addressed. It was highlighted what can be done to take care of the case of a too low water pressure.

The next talk from Mr. Berger addressed the topic of general requirements which need to be met by the interface FDS – FES (Fire Extinguishing System). Mr. Berger explained the different cases of interaction of the FDS and the FES. Situations might be given with integrated or completely separate tasks. There are no normative requirements (also no EN requirements) on any interface apart from those of the VdS, which is in use in Germany since 1987. It was shown how faults on the transmission path can be detected using this manufacturer and craft independent interface. It was highlighted where exactly the responsibilities of the manufacturers are bounded. Some technical details of the interface (in the form of circuit diagrams and labelling of the junction boxes) were shown.

The last presentation was made by Mr. Kling on the topic of automatic monitoring of the FES. The standards for monitoring (of the VdS and the CEA) were mentioned concerning different gas extinguishing systems. The essential properties and functions (in terms of level, quantity of the agent, pressure and valve position) and the associate components (like gate valves, the power supply, the monitoring panel and the wiring) which all need to be monitored, were described. Other details about the degree of monitoring were described, which included information about those faults, which need to be indicated for essential functions and components.

In a short summary Mr. Stahl draw some conclusions from the discussions in the workshop. As usual the president of Eusas closed the workshop.

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