

OneU Fire Protection Systems

for Use in Closed 19" Racks



Fire protection

Only 44 mm high



Functioning IT systems should not be taken for granted. For companies that have to ensure a high level of data availability, with ever more powerful systems, this reliability is often a matter of survival.

Especially in high-tech 19" racks having a compact design, high thermal loads may lead, in the worst case, to an outbreak of fire. OneU fire protection systems offer optimal protection in these circumstances. These devices are truly innovative, with minimal space requirements for a full range of equipment.

Sensitive fire detection and residue-free extinguishing are the hallmarks of OneU fire protection systems that are designed specifically for installation in closed 19" IT racks. A high level of data availability is ensured by redundant components and an integrated emergency power supply. OneU systems offer maximum flexibility through modular expandability.

Conventional fire protection systems need a space of up to three rack units, while the unique installation height of the OneU fire protection system consists of only one unit (44 mm), leaving space for other IT components. At the same time, the OneU system is equal in function, quality and reliability to systems that require more space.

OneU fire protection systems guarantee maximum availability of technical equipment even in the event of short circuits, overloading, overheating or component error causing an incipient fire. The systems are therefore ideal for availability concepts, such as:

- Server and network technology, which ensures round-the-clock availability of essential company data
- Production controls, which control and monitor production processes
- Telecommunications installations, which ensure fault free communication for the company

All versions of the OneU fire protection systems are tested and certified by VdS Schadenverhütung and other international certification bodies.

OneU active extinguishing system

All-in-one

OneU active extinguishing systems are stand-alone, independent devices for detecting and extinguishing

fires in closed IT racks. They are simply inserted into one of the slots in the top third of the racks.



The single height unit contains:

- an aspirating smoke detector module
- a Novec™ 1230 extinguishing module
- a power supply module
- detection and control electronics
- monitored connections for external alarm devices
- floating contacts for shutting down power circuits
- a clearly laid-out and user-friendly display and control panel

Aspirating smoke detector module

The aspirating smoke detector module continuously extracts air samples from the monitored 19" rack using a suction fan. By default, the module is equipped with two highly sensitive smoke sensors, which can be configured to have an adjustable response sensitivity and which analyze the air samples for the presence of smoke particles. The different response sensitivities enable a combination of pre-alarms and main alarms:

- As soon as the first sensor detects smoke particles, the system triggers a pre-alarm. At this stage, electrical circuits can be disconnected automatically as an obstacle to the further expansion of emerging fires.
- If the fire continues to develop nevertheless, the second sensor will detect smoke particles which, in turn, activates the main alarm. At the same time, the control electronics of the system activate the Novec 1230 extinguishing module.



Novec 1230 Extinguishing module

The Novec 1230 extinguishing module consists essentially of a pressure-resistant metal container with the extinguishing agent Novec 1230 by 3M, a release mechanism with a valve and a propellant gas cartridge, an extinguishing agent leakage monitor and the OneU extinguishing nozzle.

During the extinguishing process, the propellant gas cartridge is opened and the liquid extinguishing agent is released. The special geometry of the nozzle ensures that the extinguishing agent is vaporized when exiting the nozzle enabling it to unfold its full extinguishing effect. The agent permeates through the rack and all installed devices and cable spaces. In ventilated IT racks, the central position of the nozzle on the front side of the device is also beneficial for the distribution of the extinguishing agent. The fire is extinguished quickly, without residues.

A Novec 1230 module stores enough extinguishing agent to protect closed 19" racks with a maximum volume of up to 2.8 m³.

Power supply, control system, information

The power supply module, consisting of the power supply unit and rechargeable batteries for the emergency power supply, ensure uninterrupted operation for at least four hours.

The detection and control electronics equipment permanently monitors the smoke sensors for proper functioning and possible contamination and automatically triggers the Novec 1230 module in the event of a fire. Optionally, the extinguishing module can be activated via an external manual release. Floating contacts are available for forwarding alarms and malfunctions, e.g. to a central process control or to a superordinate fire detection system installed in the building, as well as for power shutdowns.

A two-line LCD display and six additional LEDs indicate the operating status of the OneU fire protection system.

OneU fire protection systems can also be integrated in Ethernet networks to route messages via SMS or email, and to display them on IP-enabled devices.

Structure of the OneU active extinguishing system

Aspirating smoke detector module consisting of

- 1 Fan
- 2 Smoke sensors

Novec 1230 extinguishing module consisting of

- 3 Propellant gas cartridge
- 4 Novec 1230 extinguishing agent container with leakage monitor
- 5 Extinguishing nozzle

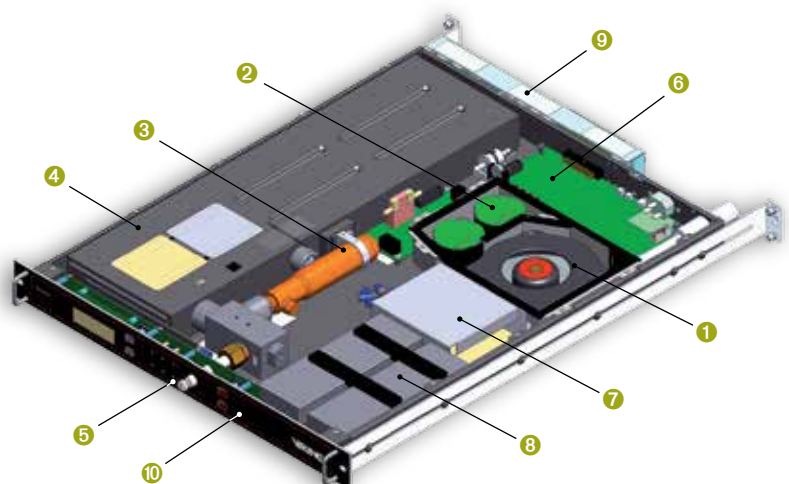
Detection and control electronics 6

Power supply module consisting of

- 7 Power supply unit
- 8 Emergency power supply

Connections for the power supply and for external systems 9

Front panel with display and control panel 10



Combined

The OneU product family

OneU DD aspirating smoke detector systems and OneU ED extinguishing systems round off the OneU fire protection systems product family. Just like OneU active extinguishing systems, both devices

only require a single height unit in the 19" rack, and are inserted simply into one of the slots in the top third of the rack.



OneU DD aspirating smoke detector systems

OneU DD systems provide the same functionalities as OneU active extinguishing systems - however, without the integrated Novec 1230 extinguishing module. Just like OneU active extinguishing systems, they can aspirate air samples through a piping system consisting of up to five racks and analyze the air samples for the presence of smoke particles, as well as monitor and control up to four OneU ED extinguishing systems in the event of fire. Alternatively, OneU DD aspirating smoke detector systems can also trigger external extinguishing systems.

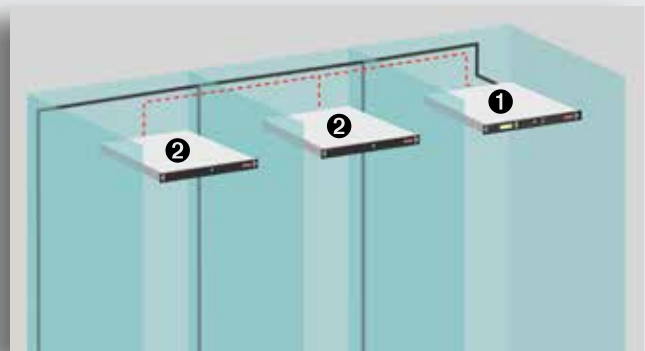
OneU ED extinguishing systems

OneU ED systems essentially consist of a Novec 1230 extinguishing module and the control electronics, and each protect a closed 19" rack with a maximum volume of 2.8 m³. They are preconfigured for connection to the OneU active extinguishing system or OneU DD aspirating smoke detector system.

Combined

The three units of the OneU product family can be selected and combined depending on the individual requirements.

Up to five OneU fire protection systems can be linked together to jointly monitor interconnected IT racks, meaning that the OneU active extinguishing system (1) or the OneU DD aspirating smoke detector system (1) can monitor and control up to four other OneU ED extinguishing systems (2) in the event of fire.



Benefits

At a glance

There are many reasons for choosing a Viking OneU fire protection system:

- OneU fire protection systems guarantee highly sensitive fire detection and residue free extinguishing – for maximum availability of technical facilities.
- With an installation height of only one rack unit (44 mm), this system can be installed in an extremely space-saving manner – without compromising on functionality, quality and reliability.
- All versions of the OneU fire protection system are tested and certified by VdS Schadenverhütung and other international certification bodies.
- Wide range of applications – the three devices of OneU product family can be combined with each other.

Technical features of the OneU product family			
Characteristic	OneU active extinguishing system	OneU DD aspirating smoke detector system	OneU ED extinguishing system
Height equivalent to one rack unit (44 mm)	●	●	●
Aspirating smoke detector module	●	●	
Novec 1230 extinguishing module	●		●
Power supply module (including emergency power supply)	●	●	*
Monitored control alarm devices	●	●	●
Contacts for shutting down power circuits	●	●	●
Display and operating panel	●	●	
Ethernet network capable	●	●	●
* Power supply via OneU active extinguishing system or OneU DD aspirating smoke detector system			

For further information, please contact your local Viking sales office or refer to the technical documentation. The contents of this publication are subject to modifications without notice.

Photos
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