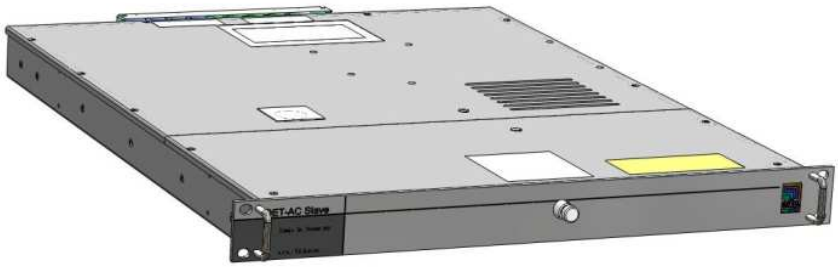


DET-AC Plus Slave
Extinguishing system

7338.320

Assembly and operating instructions **EN V.2.0**

RITTAL

FRIEDHELM LOH GROUP

DET-AC Plus Slave
Extinguishing System

General information

The Extinguishing System DET-AC Plus Slave is a quality product in accordance with the latest state of the technical art.

As the sole supplier in Europe for mobile and stationary fire protection solutions from a single source Minimax offers individual protection concepts for every risk. More than 100 years of experience, intensive contributions to national and international expert committees, and the close co-operation with insurers and test institutes form the basis of the high quality and safety of problem solutions for fire protection from Minimax.

The successful implementation of the installation and the safe operation of this device requires knowledge found in these operating instructions.

The information is presented concisely and clear.

Device manufacturer:
Minimax GmbH & Co. KG
Industriestraße 10/12
23840 Bad Oldesloe
Germany
Tel.: +49 (0)4531/803 - 0
Fax: +49 (0)4531/803 - 248
Email: info@minimax.de
Internet: www.minimax.de

DET-AC Plus Slave Extinguishing System

Contents

1. General

1.1 Explanation of symbols and notices

In this documentation safety notices and important explanations are indicated by the following symbols:

Caution!

Is placed before warnings which require particular observation to ensure the proper operation of the system, the compliance with directives, regulations, notices and correct procedures, and the prevention of personal injury, malfunctions, faults or damage to the device or the whole system.

Note

Indicates general notes and explanations.

1.2 Intended use

This device is only to be used in accordance with the operating conditions detailed in the contract documentation and the operating manual.

Any other or additional use is not as intended. The manufacturer is not liable for any damage resulting from such use, the risk in such cases is born exclusively by the operator or commissioner.

The intended use also includes:

- observing all notices contained in the operating instructions
- complying with the operating, servicing and maintenance conditions prescribed by Minimax.

The operator must carry out regular visual and functional inspections in accordance with the check list in the chapter maintenance / service and must document them in the report book, if necessary.

The operator must coordinate modifications of the object to be protected with the installer or commissioner of the system if they affect the function of the DET-AC Plus Slave Extinguishing System (e.g. additional holes in the cabinet to be protected).

These operating instructions

- relate to the DET-AC Plus Slave Extinguishing System and are intended to serve as working documentation for the operators and users of this device. However, they cannot replace the training / instruction in the DET-AC Plus Slave Extinguishing System.
- do not replace applicable laws, standards, regulations and technical guidelines in any way.
  The observance of such requirements is the responsibility of the installer or operator of the system.
- do not claim to be complete and are subject to continuous updates without prior notice.
- are aimed exclusively at specially trained experts familiar with the corresponding specialist knowledge relating to the installation, commissioning, maintenance and modification of technical devices of this kind.

1.3 Safe operation

The device described here has been manufactured in accordance with the latest state of the technical art and accepted safety rules and features a high degree of operational safety.

However, the device can pose hazards or impair the system or other property if used improperly or other than intended.
The device must only be used in an undamaged and fully functional condition.
The notices on the installation, operation and maintenance of this device contained in these operating instructions aim at the proper, safe and error-free operation. Since relevant regulations may differ across the world, the applicable national regulations and laws at the location of use must be observed even if they contradict the notices contained in these operating instructions. The following details must in particular be observed:

- National safety and accident prevention regulations
- National standards and laws, particularly with regard to hazard detection systems
- National assembly and installation regulations
- Generally accepted technical principles
- These operating instructions including the safety and warning notices contained therein
- The characteristics and technical specifications of this device

Where it is suspected that a safe operation is no longer possible (e.g. damage) the device must be immediately decommissioned and protected against unintentional re-commissioning.

1.4 Operator's obligation

The operator commits to only allows individuals to work at/with the DET-AC Plus Slave Extinguishing System,

- who are familiar with the basic regulations on occupational safety and accident prevention,
- who have been instructed in the handling of this device and the overall system, and
- who have read and understood the operating instructions including the safety and warning notices contained therein.

1.5 User's obligation

Installation, maintenance, inspections and repairs may only be carried out by individuals with adequate professional qualifications. These individuals are, for example, “competent individuals in matters relating to hazard detection systems” or “qualified electricians for hazard detection systems”. The applicable national regulations, in particular with regard to the required qualifications, in the country of use must be observed.

Furthermore, all individuals working with the device commit

- to always observe the basic regulations on occupational safety and accident prevention,
- to familiarise themselves prior to starting work with the conditions of the object and its environment, the safety concept, the protection task and possibly the monitoring task of an superordinated fire detection system,
- to have read and understood the operating instructions including its safety and warning notices.

Any questions with regard to the operating instructions must immediately be clarified with the respective supervisor or the manufacturer of the device.

1.6 Alterations and modifications

Unauthorised alterations and modifications of the device are not permitted and invalidate any manufacturer liability.

1.7 Documentation of additional system components

If the device is used in conjunction with other components from Minimax (or other manufacturers), it must be ensured prior to commissioning the system that the relevant manufacturer documentation has been read and understood.

1.8 Spare parts

Only original spare parts may be used.

1.9 Technical developments

The manufacturer reserves the right to modifications in the interest of technical development whilst retaining the key features of the device type described without corrections to these operating instructions.

2. Function and design of the DET-AC Plus Slave Extinguishing System

2.1 Short description

The DET-AC Plus Slave extinguishing system has been designed for installation in enclosed switch cabinets and is a compact unit that is able to extinguish fires. As superordinate device an upstream DET-AC Plus Active Extinguishing System and/or EFD plus is to be planned.

The extinguishing agent used is Novec™ 1230, a chemically acting liquid which evaporates at a nozzle and has extinguishing powers in gaseous form.

Alarms and faults can be transmitted via potential-free contacts or optionally via the CMC-TC with I/O unit or an upstream DET-AC Plus Active Extinguishing System resp. DET-AC Plus to a superordinated location (monitoring or control device).

The compact Extinguishing System with a space requirement of only 1 unit is intended for installation in the upper third of a 19" switch cabinet system. It is to be paid attention, that are no distracting components above the extinguishing nozzle, which are prevent the leaving extinguishing agent.
The device is easy to install and cheap to maintain.

Areas of application

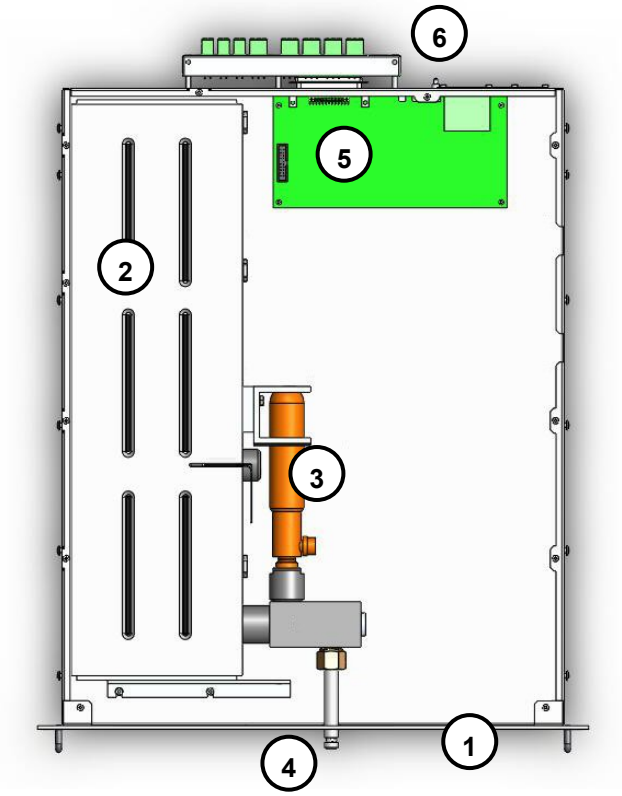
The DET-AC Plus Slave Extinguishing System is used to protect high quality technical installations, in order to delete fires resp. smoldering fires there.
These include:

- **IT, server and network technology**
  which must provide important data for the enterprise process and ensure the data flow itself, besides
- **Production controls**
- **Telecommunications installations**
- **Power supply and control systems**

The earliest detection of a fire together with this extinguishing system ensures that downtimes and subsequent damage caused by a technical fault are minimised.

2.2 Design

1) Front panel
2) Extinguishing agent tank with level monitoring and electric release device
3) Propelling gas cartridge
4) Extinguishing nozzle
5) Main board
6) Power supply unit



2.3 Function

When in case of operation the release device is electrically triggered the propelling gas cartridge (3) is opened and the propelling gas flows into the extinguishing agent tank (2). The propelling gas presses the extinguishing agent towards the extinguishing nozzle (3). At this nozzle the extinguishing agent evaporates and builds up the necessary extinguishing concentration for extinguishing the fire.

The filling level monitor integrated into the extinguishing agent tank reports a loss of extinguishing agent to the evaluation electronics which proceeds the forwarding of this fault signal (extinguishing agent loss) to the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus resp. to a superordinated system.

The power supply for the DET-AC Plus Slave Extinguishing System is carried out via the upstream master device DET-AC Plus Active Extinguishing System or EFD Plus resp. another upstream ranged DET-AC Plus Slave extinguishing system.

The control and display of the current state of the extinguishing system is achieved via the upstream DET-AC Plus Active Extinguishing System or EFD Plus. After being selected the individual devices are indicated on their LCD display.

If there are several messages, the cursor keys can be used to switch between them. The existing messages are sorted in accordance with their priority and the order of arrival. If the cursor keys are not used for a duration of 30 seconds, the display switches back to the normal state.

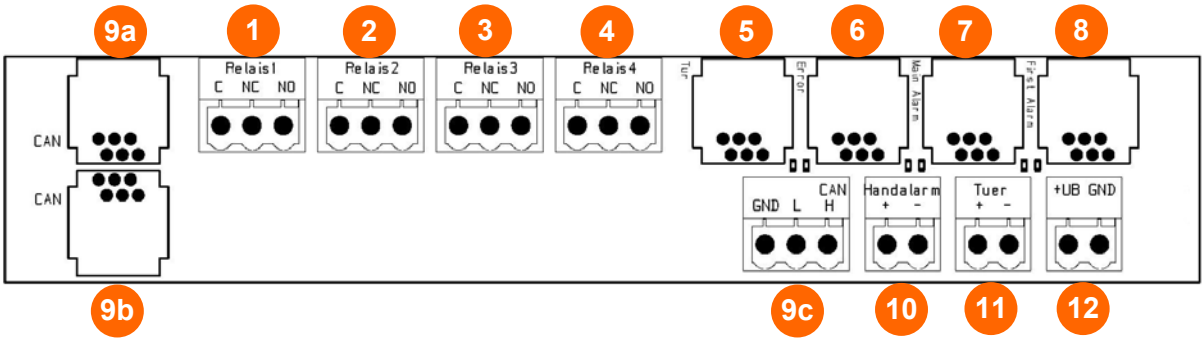
The display of collective conditions via the LEDs of the control unit is independent of the content of the LCD and therefore independent of the scrolling using the cursor keys. It always represents the current system state.

Besides the cursor keys the control unit has another two keys for resetting stored messages.

Front view

Rear view

2.4 Connections



1) Relay output “pre-alarm”, see 2.4.4
2) Relay output “fire alarm”, see 2.4.4
3) Relay output “extinguishing released”, see 2.4.4
4) Relay output “common failure”, see 2.4.4
5) Connector (RJ12) to connect door switch (door contact 1), see 2.4.1
6), 7), 8) Without use
9a) CAN-bus connection from superordinated device
9b) CAN-bus connection to subordinated device
9c) Still without function - reserved for future applications
10) Two-pole plug for manual release / manual alarm
(delivery incl. terminating resistor 1.8K), see 2.4.2
11) Two-pole plug for door contact 2 (delivery incl. 2 terminating resistors 22K), see 2.4.1
12) Two-pole plug for power supply (U_S), see 2.4.3

Wiring
To the positions 9 to 12 applies: The cables used may totalised not be longer than 20 m per terminal. The minimum cable diameter amounts to 0.5 mm^2.
The voltage supply of the DET-AC Plus Slave Extinguishing System is carried out by means of hardware wiring 2x1,5 mm^2 via the DET-AC Plus Active Extinguishing System or EFD Plus resp. another upstream ranged DET-AC Plus Slave extinguishing system.

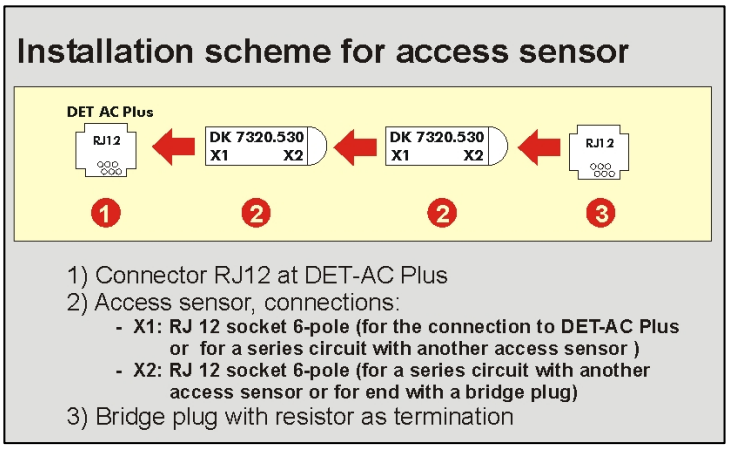
Mechanical connection data of the terminal

Type of cable	min.	max
Conductor cross-section rigid	0,34 mm^2	2,5 mm^2
Conductor cross-section flexible	0,2 mm^2	2,5 mm^2
Conductor cross-section flexible with wire-end sleeve without plastic sleeve	0,25 mm^2	2,5 mm^2
Conductor cross-section flexible with wire-end sleeve with plastic sleeve	0,25 mm^2	2,5 mm^2
Conductor cross-section AWG/kcmil	24	12
2 conductors with similar cross-section rigid	0,2 mm^2	1 mm^2
2 conductors with similar cross-section flexible	0,2 mm^2	1,5 mm^2
2 conductors with similar cross-section flexible with AEH without plastic sleeve	0,25 mm^2	1 mm^2
2 conductors with similar cross-section flexible with TWIN-AEH with plastic sleeve	0,5 mm^2	1,5 mm^2

The electrical connection including PE made available on site is to be realised acc. to EN 50173 and EN 50174.

2.4.1 Door contact / blocking

Via the input "door switch" the release of the extinguishing system is blocked.
For each cabinet the door contacts are connected to the respective device. When actuating the door contacts by opening the door always the entire fire detection and extinguishing system is blocked (up to max. 5 server cabinets). This is necessary because the build-up of a sufficient concentration of extinguishing agent cannot be guaranteed with the door open. This blocking is displayed in the LCD and via the green flashing operating LED, also the relay “collective fault” switches. No yellow fault LED is on or flashing.



Caution!
All extinguishing requests registered during the condition "Extinguishing system blocked" (= blocking of the extinguishing system) place all devices connected to the DET-AC Plus resp. EFD Plus into the status "extinguishing system blocked".

Input "door switch" as RJ12 connector

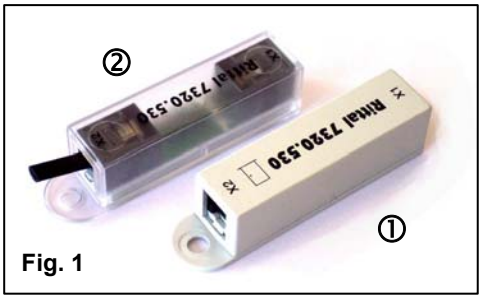


Fig. 1

One input "door switch" (5) is designed for the model Rittal 7320.530 (see fig. 1). As termination an RJ12 connector with a resistor is provided (see fig. 2).

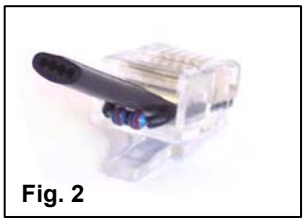


Fig. 2

With door switches in old version (fig. 1, ①) to the 22kΩ terminating resistor a 22kΩ resistor is switched parallel at the output of the last switch, as soon as all doors are closed, so that with normal operation a resistance of 11kΩ adjusts itself. With open door a resistance of 22kΩ adjusts itself.
With door switches in new version (fig. 1, ②) a 1KΩ terminating resistor is plugged into the output X2 of the last switch. If all doors are closed, in normal operation only that 1KΩ terminating resistor is in the monitoring circle. With each door, that is opened, a 22kΩ resistor is switched parallel to this 1KΩ resistor.

Via the connection X2 several door switches of this type can be switched in series (max. 10 door switches).

Brief Information: Door Contact Switch

	terminating resistor		switch setting	
design	ohm	marking	DIP 6	DIP 7
old	22k	none	OFF	ON
new	1k	white point	ON	OFF

Selection of door contact via hardware switchover
The door contact is also integrated in the software, so that it must be differentiated between the old grey door switch ① and the new transparent door switch ②.
The respective door switch is selected via the hardware (DIP switch, see fig. 3) as follows:

- Function of old door switch: On the control card at the DIP switch S3 the slide switch 6 is set on OFF and the slide switch 7 is set on ON
- Function of new door switch: On the control card at the DIP switch S3 the slide switch 6 is set on ON and the slide switch 7 is set on OFF

Fig. 3

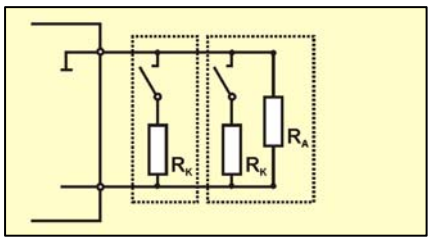
Note: After change of the slide switch position the device must be switched dead completely. The battery off button at the rear of the device (see chapter „installation steps and functional test“) must be operated with taken off power supply plug. Afterwards the system is actuated. Info: The LED of the functioning door switch does not shine!

Caution!
In each case either the RJ12 connector **or** the two-pole plug may be used as input "door switch".

Caution!
If a fire alarm is released with blocked fire extinguishing system (indication "Extinguishing system blocked") and the blocking is abolished with queued alarm, e.g. by closing the door, the extinguishing action is started one second after abolition of the blocking.

2.4.2 Manual release / manual alarm

By operating an optional connectable manual release the extinguishing action is triggered manually.



Switch open	**= Quiescence**
Switch closed	**= Alarm**

The resistors must be dimensioned as follows:

- R_A: 1K8 Ohm, 0.5 Watt (included in delivery)
- R_K: 470 Ohm, 0.5 Watt

To trigger the extinguishing action the push button "manual release" must be operated for at least 1 second. The release is always direct and independent of the condition of the automatic detectors. The programmed dual detector dependency will not be considered during manual release.

The release via the input "manual release" is suppressed during an open door contact (see chapter 2.4.1) or if an external blocking is present.
At first the alarm message of the manual release must be reset manually at the push button. Now only the reset button could be operated (see chapter 3.5.2).

Attention!
The connection is to be planned preferably directly over the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus.

2.4.3 External power supply

The input power supply is not at disposal for external consumers as two-pole connection (U_S)

2.4.4 Relay outputs

Attention!
The connection is to be planned preferably directly over the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus.

The Extinguishing System has 4 relay outputs with one change-over contact each:
(connection diagram see chapter 2.4.)

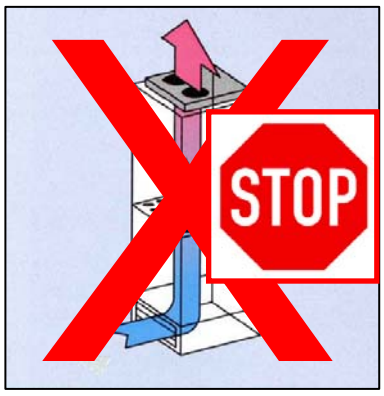
Relay 1	Pre-alarm (NO)	A detector has triggered. The relay remains energised until the alarm criterion is no longer present and the reset key button has been pressed.
Relay 2	Fire alarm (NO)	The second detector has triggered or the manual release was actuated. The relay remains energised until the alarm criterion is no longer present and the reset key has been pressed.
Relay 3	Extinguishing released (NO)	The relay is energised parallel to the release of the extinguishing function and remains energised until the reset key is pressed.
Relay 4	Common failure (NC)	The relay is permanently energised. In case of a fault (exc. mains fault) the relay drops out. The relay operates also with blocked fire extinguishing system, in order to forward the info „release did not take place“.

The relays 1-3 stay permanently energised when triggered. The maximum switching voltage is 30 V with a maximum switching current of 1.2 A and a pure resistive load. Inductive or capacitive loads require external protective circuits which must be provided by the operator.

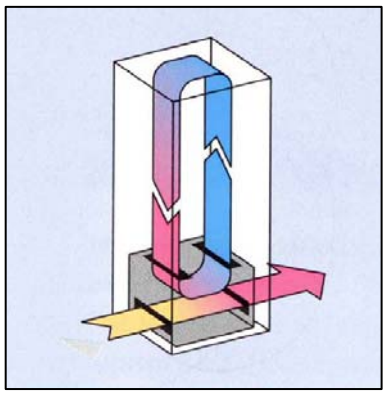
3. Installation, operation and control of the DET-AC Plus Slave Extinguishing System

3.1 Conditions for use and installation

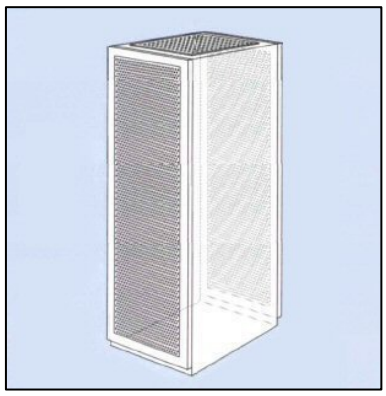
- Permitted ambient temperature range: +10 °C to +35 °C
- Relative humidity: up to 96 %, humidifying inside the device through temperature change is not permitted
- Ambient air low in dust and contamination
- The use in areas where gases or vapours corrosive to metal or plastic are present is not permitted
- The installation of the device in areas with vibrations caused e.g. by nearby punching machines is not permitted
- Operation only with closed cooling air circuit within the airtight closed cabinet or closed cabinet without ventilation (see drawings below), the air exchange rate of the switch cabinet system to be protected must not be greater than 10 % within 20 min.
- Max. permitted protection volume: 3 m^3 (condition: small opening surface)
- An empty unit in the upper third of the cabinet
- Existing minimum installation depth of 640 mm
- IP 55 if cable duct from the bottom
- IP 55 if cable duct from the top
- The operating voltage is provided by the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus (see 2.4)



Installation of the DET-AC Plus Slave Extinguishing System in a cabinet with open cooling air circuit is not possible!



Installation of the DET-AC Plus Slave Extinguishing System in a closed cabinet with closed cooling air circuit is possible.



Installation of the DET-AC Plus Slave Extinguishing System in a airtight closed cabinet without cooling air circuit is possible.

Installation of the DET-AC Plus Slave Extinguishing System in differently equipped racks only after prior consultation.

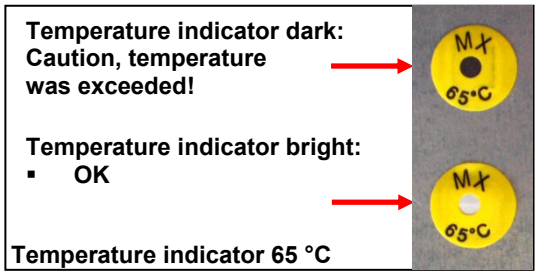
3.2 Installation and commissioning of the device

Note
Ensure early on that the cabinet to be protected meets all space and installation option requirements to enable the proper installation of the DET-AC Plus Slave Extinguishing System.
During installation consider the switching off of electrical devices within the monitoring area during a fire in order to remove the supporting electric energy early on.

Note
Always retain the transport packaging of the DET-AC Plus Slave Extinguishing System. For maintenance or repair the device may only be sent in the special original transport packaging or a equivalent one.

Preparation

- Check the scope of delivery regarding completeness.
- Check the temperature indicator for proper condition (see figure) on the front cover plate.. If the temperature indicator is dark, it is possible that the positive pressure safety device of the extinguishing tank was released. In this case with start-up the message "tank empty" is indicated in the display.



Scope of delivery

- DET-AC Plus Slave Extinguishing System incl. extinguishing tank incl. nozzle, power supply cable, data cable (CAN-bus), 1 pcs. terminating resistor 1,8K for manual release / manual alarm (already inserted in connector), 1 pcs. terminating resistors 22K for door contact (already inserted in connector), 1 pcs. terminating resistors 1K (already inserted in RJ12 connector), 1 pcs. terminating resistors 22K for door contact old (already inserted in RJ12 connector).
- Operating manual German (88 9225) and English (88 9226) version
- 4 pcs. oval-head screws DIN 7985 - M5x16
  (to attach the device with M5 cage nuts via the front panel to the 19" frame M5 caps 4x)
- sliding rail of varying depth left / right
- Raised head M4x6 in accordance to ISO 7380 12x (for fixing sliding rail)

3.2.1 Installation notes

Caution!
It is possible for an alarm to be triggered during commissioning!
It must be ensured that any controls downstream from the device (e.g. additional extinguishing systems or transmitted messages) have been switched off beforehand!

The device must be positioned in the top in the upper third, preferably the top slot, of the 19" cabinet to be protected in order to achieve a fast extinguishing action.
Care must be taken that the nozzle is positioned in such a way that within a radius of 200 mm around the nozzle spraying is not obstructed by anything other than the cabinet wall and cabinet door (e.g. cables or energy rails).
This must also be observed without fail during any future changes within the cabinet!

Caution!
Installation position: The DET-AC Plus Slave Extinguishing System must be installed in a horizontal position (aligned with spirit level) to ensure that the extinguishant can be discharged completely.

3.2.2 Installation steps and functional test

Caution!
Please always carry out the installation steps in the order given below. Record the steps in the installation and test report (see appendix)

Installation steps:

- The device is to be switched to “blocked” at the blocking switch (see fig. 3).
- Open the cover foil of the device
- Configure the device with addresses (see figure 1)
  - S4 (analysis time) set on number 3 (**may not be changed!)**
  - S5 (analysis time) set on number 3 (**may not be changed!)**
  - S6 Adjust to the sum of the devices linked up (see attachment chapter 7.4 “cross-linking”)
  - S7 Adjust to the identification, which the device has within the cross-linking (see attachment chapter 7.4 “cross-linking”)

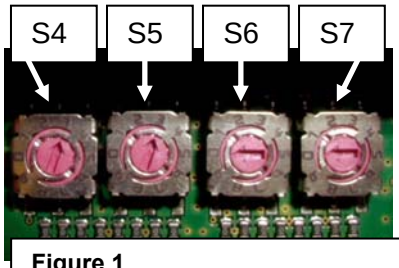


Figure 1
Configuration of the devices by adjusting the switches S6 and S7

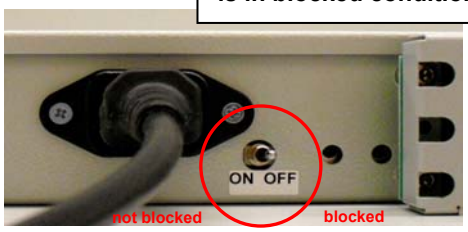
- Close the cover foil of the device
- Install the sliding rails (supplied by customer) to support the device
- Slide the device horizontally onto the sliding rails. Ensure that the device slides in easily without jamming up to the stop of the font panel at the frame
- Attach the device to the front panel using four of the screws and block plastic washers included through the holes of the front panel in the 19" frame (see fig. 2)
- Connect the device to the supply voltage (24 V operating voltage) of the upstream DET-AC Plus or EFD Plus

Figure 2:
Attachment in the cabinet

Caution!
Before attaching the CAN bus cable no message "fire alarm" may be registered, since otherwise the extinguishing is released immediately after connection of the cable!

- Cross-link the device via CAN-Bus connections, in doing so proceed in the descending order from the superordinated device downwards
- Only, when the device shall be brought into the operational condition ready for extinguishing, the blocking switch (see fig. 3) is to be switched to “not blocked”. **Caution!** After this step the device is ready for operation and release!

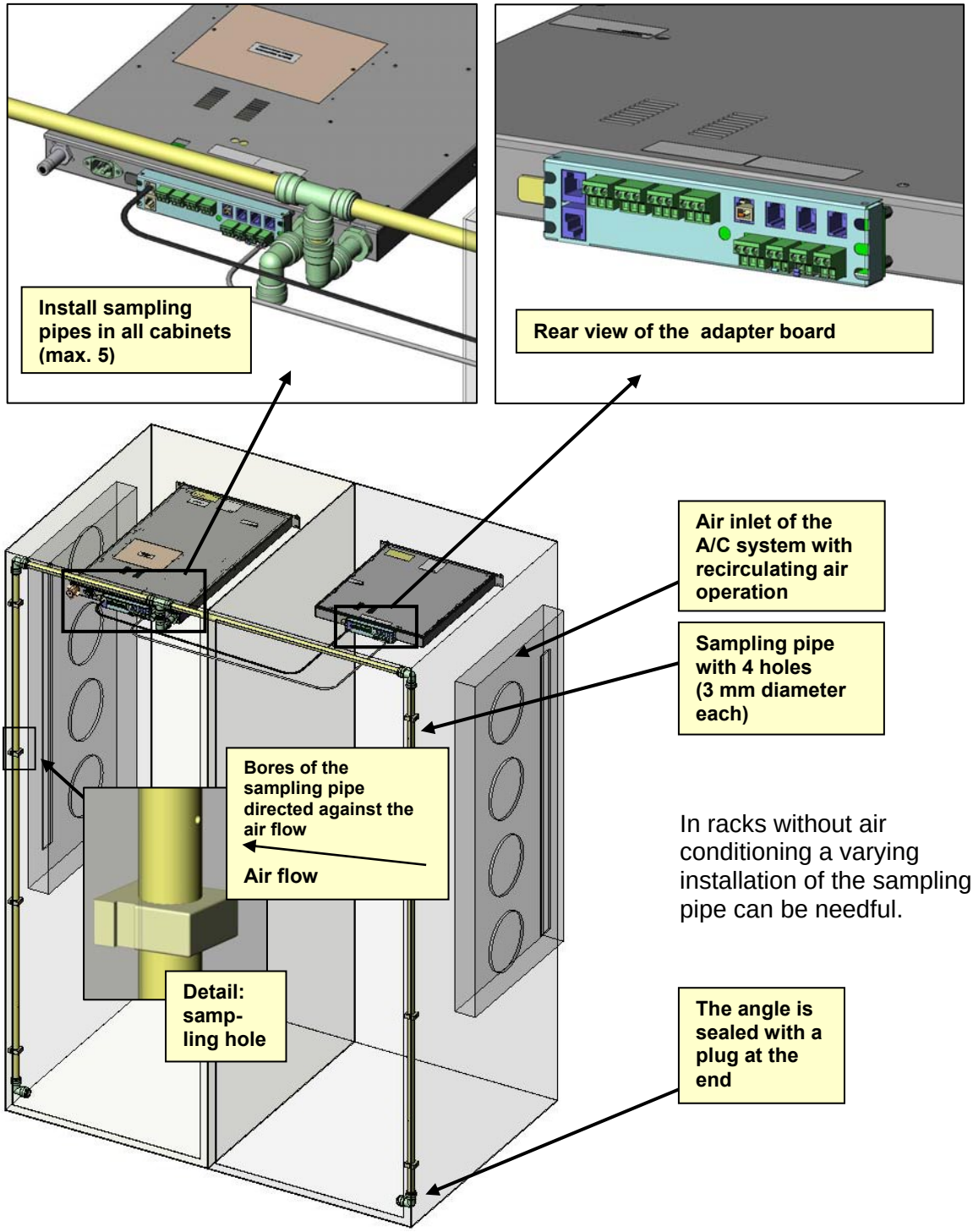
Figure 3 Blocking switch (device is in blocked condition)



For the subsequent functional tests of the device and of additional devices see installation- and test report (see 7.1); connection of additional electrical devices see chapter 3.3

3.2.3 Installation notes for the sampling pipe

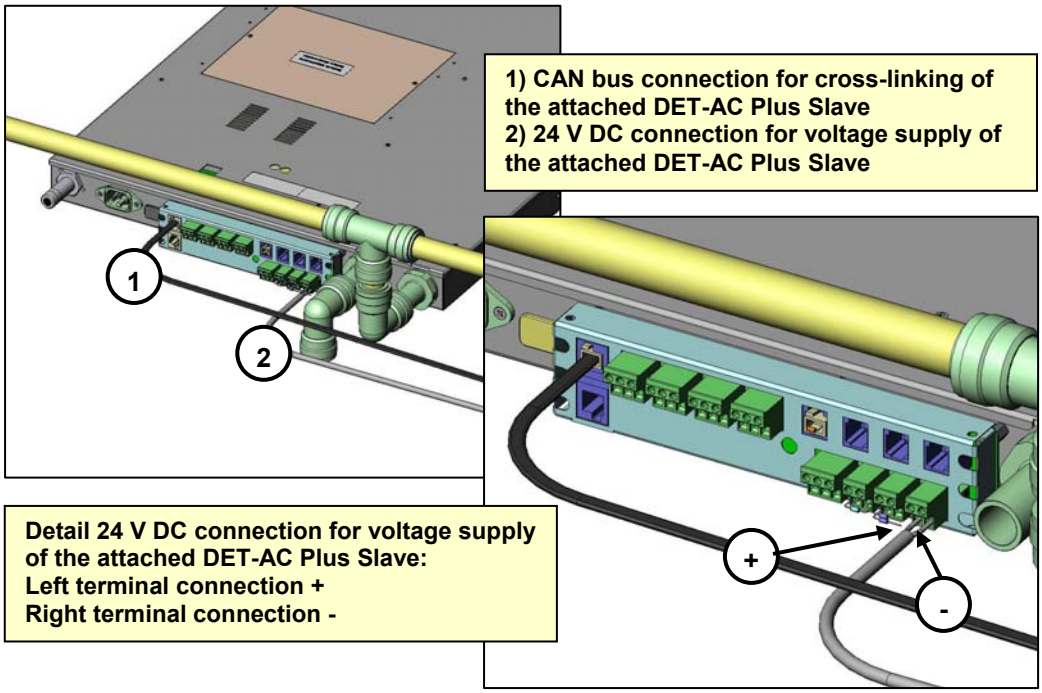
Installation variants sampling pipe
(concerns superordinated DET-AC Plus resp. EFD Plus)



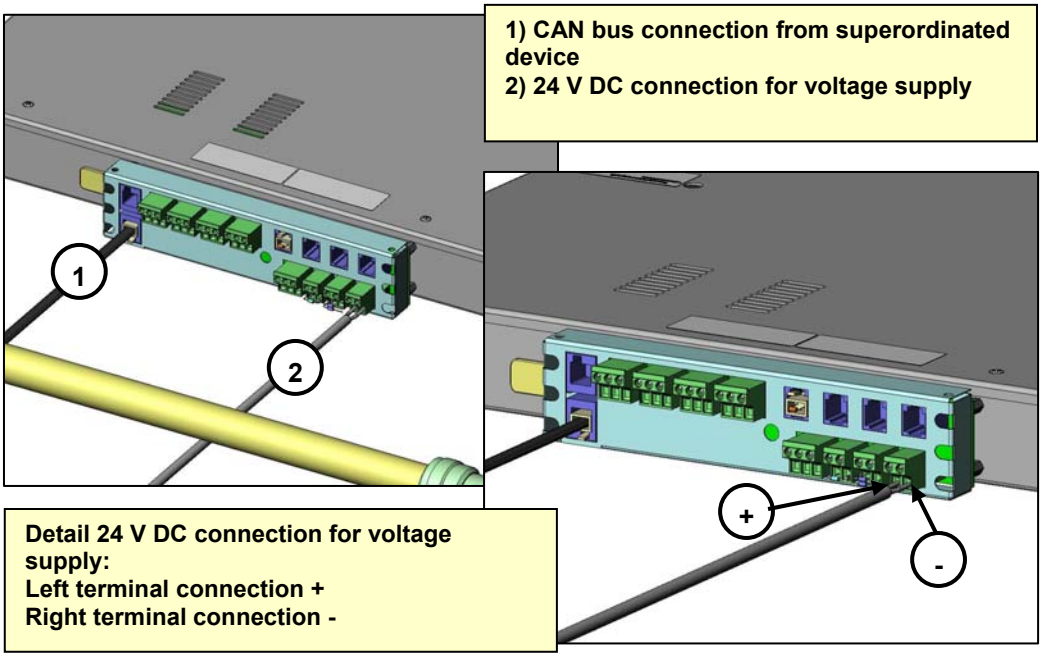
In racks without air conditioning a varying installation of the sampling pipe can be needful.

Wiring

Connections to superordinated device (DET-AC Plus resp. EFD Plus)



Connections at DET-AC Plus Slave



3.3 Installation and commissioning of a push button

Attention!
The connection is to be planned preferably directly over the upstream DET-AC Plus Active Extinguishing System or EFD Plus.

After the proper installation and commissioning of the DET-AC Plus Slave Extinguishing System an additional push button can be connected.

Two connections must be made
1. 24V voltage supply (connection diagram see chapter 2.4, point 12)
2. CAN bus cable (connection diagram see chapter 2.4, point 9)
To connect the push button for manual release the sequence in the installation-and test report (see 7.1) must be observed.

Attention!
Before installing the push button the device must be set into the status "blocked".

3.4 Monitoring / faults

Various cable connections of the DET-AC Plus Slave Extinguishing System are monitored:

1. 24V voltage supply
2. CAN bus connection
3. Filling level monitoring extinguishant tank
4. Release extinguishant tank
5. Connection door contact
6. Connection push button

If there is a fault with a cable connection, this is indicated on the LCD display of the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus as follows

As identification for the particular DET AC plus Slave 1 to 5 there is a Z2 to Z6 in the top left on the LCD display

The possible indicated faults of the particular monitored cable connections are:

Cable connection	**possible fault message**
24V voltage supply	Fault communication
CAN bus connection	Fault communication
Filling level monitoring extinguishant tank	Extinguishing agent monitoring fault, extinguishant loss
Release extinguishant tank	Fault output extinguishing
Connection door contact	Extinguishing blocked, fault door contact
Connection push button	Fault push button

Possible LCD indication:
At the attached DET-AC Plus Slave with the identification Z4 there is a fault of the filling level monitoring

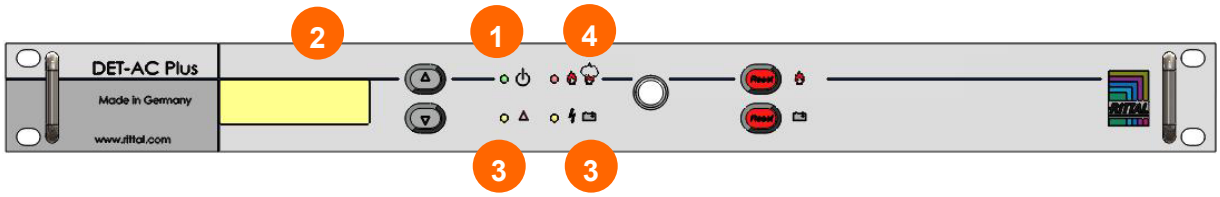
Caution!
In case of a fault the proper functioning of the device is not guaranteed. If a fault message arrives it might not be possible to detect and extinguish a fire!
Therefore, the cause of the fault message must be immediately removed!

Caution!
Before the functional test the door must be opened to block the extinguishing action. This must be checked via the flashing operating LED and the indication "extinguishing system blocked".
No fire message (red LED) may be indicated before the blocking is cancelled by closing the doors, otherwise the extinguishing action will be initiated!

3.5 Control elements

For operating the DET-AC Plus Slave see users manual of the upstream DET-AC Plus Active Extinguishing System or EFD Plus.
A direct query of the DET AC plus Slave by menu functions is not possible

The DET-AC Plus Slave forwards its status information automatically to the upstream DET-AC Plus Active Extinguishing System or DET-AC Plus and these are indicated there by LCD display and via LED. On the LCD display the information can be viewed by scrolling

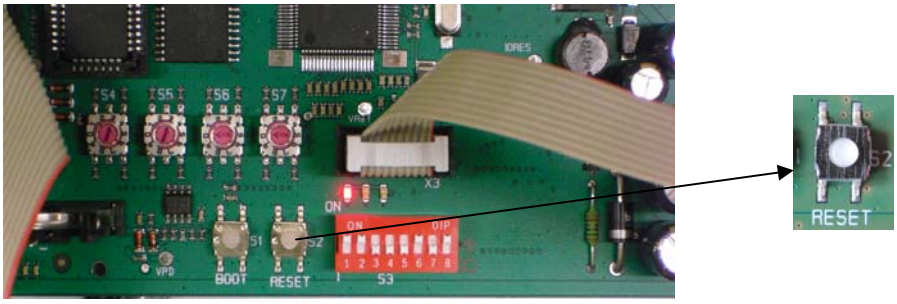


The correct operating state of the DET-AC Plus Slave Extinguishing System is indicated by a permanently illuminated green operating LED (1).

If a fire alarm or faults occur, they are indicated on the LCD display (2) and by fault LED (3) or alarm LED (4).

The DET-AC Plus Slave Extinguishing System shall therefore be installed in a clearly visible location and monitored by an overriding system, if necessary.

Operating hours meter
Apart from the monitoring of the operation hours of the batteries the system evenly monitors the period of operation since the last maintenance. If this exceeds the maximum maintenance interval, a failure message is generated (indication by LED "collective error" and triggering of relay "collective error").
For resetting this message a fabricator reset must be carried out. For this purpose the housing of the DET-AC Plus resp. EFD-Plus must be opened. On the CPU board the key 'Reset' is to be pressed for longer than 3 seconds. Afterwards the failure message to the maintenance interval is deleted and the operation hours meter of the system reset



3.5.1 LCD display - List of messages

For the following conditions messages will be displayed on the LCD display:
Messages from the DET-AC Plus Slave do have an additional indication in the top left on the LCD display (see amendment „Cross-linking“))

Display text	Display text meaning
Manual release	An externally connected push button for manual release has been released.
Manual release fault	An externally connected push button for manual release is faulty or the line to it is faulty.
Blocking by door contact	A cabinet door is open and the door contact for suppressing the extinguishing action is enabled, the extinguishing system cannot be triggered **or** A terminating resistor for the door switch is missing
Door contact fault	A connected door contact switch is faulty or the line to it is faulty.
Extinguishing output fault	The electric release device cannot be actuated **or** the blocking switch is activated
Extinguishing output fault	The electric release device cannot be actuated.

Display text	Display text meaning
Extinguishing agent loss	The extinguishing agent volume has reduced due to loss
Extinguishing agent monitoring fault	The monitoring device of the extinguishing agent is faulty or the line to it is faulty.
Triggering extinguishing system	Extinguishant tank was triggered
Tank full	Extinguishant tank was triggered but filling level indicator does not indicate loss of extinguishant
Tank empty	Extinguishant tank was triggered and filling level indicator indicates loss of extinguishant
Status OK	Device is in the normal operating condition

4. Behaviour during a fire

Caution!
This information does not replace the locally prescribed behaviour during a fire in any way but serves as additional information about the behaviour during alarms/fires or triggering of the extinguishing system in a cabinet protected by a DET-AC Plus Slave Extinguishing System!

Measures in case of an alarm in a cabinet protected by a DET-AC Plus Slave Extinguishing System:

- Always keep the cabinet doors closed during the hold time (10 minutes). If the concentration required for extinguishing drops due to ventilation, any still existing source of ignition might flare up again.
- Shut off the energy supply of all consumers in the cabinet.
- If no fire or smoke can be seen, the cabinet can be ventilated with extinguishing aids (e.g. carbon dioxide fire extinguisher) at the ready.

Release of the DET-AC Plus Slave Extinguishing System
The release of the first DET-AC Plus Slave Extinguishing System takes place immediately after the fire alarm. Afterwards further attached devices are released time-delayed successively in the fixed order in the interval of one second
A fire alarm is triggered by the actuation of both automatic fire detectors or operation of the an optional installed push button for manual release.
If the extinguishing system is triggered manually via push button for manual release, the release takes place immediately without time delay.

Caution!
The presence in rooms flushed with the extinguishing agent Novec™ 1230 is harmless but should be avoided, because smoke development may endanger life due to toxic combustion products.

5. Control, service, maintenance and repair after release

The operator carries out the regular visual inspections at the device himself.
The maintenance and repair of the device is carried out by the Rittal Service or a specialist company authorised by Rittal.

A specialist company authorised for maintenance and fault removal is a company whose employees have been trained by Rittal in the DET-AC Plus Slave Extinguishing System. Normally this is a member of the installation company or a specially trained employee of the operator or a specialist company commissioned by him.
In case of improper handling and faulty or missing regular inspections and maintenance Rittal does not accept any liability.

5.1 Regular inspections by the operator

Daily inspections (operator)

- No fault may be present in the DET-AC Plus Slave Extinguishing System.
  (operating state without fault or alarm: green operation LED is on, no yellow fault LED is on or flashing).
  Any faults present must be recorded and removal must be initiated.

Daily inspections may be omitted if it can be ensured that any faults are safely detected elsewhere.

Monthly inspection (operator)

- Sampling pipe and extinguishing nozzle must be free of external damage and the nozzle must be free of contamination and obstacles in the spray
- Sampling pipe connections must not be disconnected

Display air flow and compare with the value from the commissioning report to detect any contamination. The max. deviation to the target value must not exceed 10 %.

Quarterly inspection (operator)

This should additionally investigate any constructive modifications (especially with regard to the air tightness of the cabinet: the air exchange rate of the switch cabinet system to be protected must not be greater than 10 % within 20 min) or changes in use, and the device should be checked for the proper operation of the alarm, fault and control functions.

5.2 Tests, maintenance and repairs

Caution!
During maintenance work at the device an alarm may / should be triggered! It must be ensured that any controls downstream from the device (e.g. transmitted messages or shut-off device) have been switched off/bridged beforehand!

Caution!
Before starting maintenance work the blocking switch of all devices interlaced in the system must be on „blocked“ position!

Semi-annual maintenance (Rittal or specialist company)
Visual inspection, complete service (e.g. test and, if necessary, clean sampling pipe and extinguishing nozzle) plus operational check.

Biennial maintenance (Rittal or specialist company)
At least every two years the DET-AC Plus Slave Extinguishing System must be serviced by Rittal Service or a specialist company authorised by Rittal. During this maintenance the system is fully tested and, if necessary, returned to the target condition. Non-observance of these intervals may cause faults or false alarms and subsequent false extinguishing.
The total weight has to be registered at the maintenance.

5.3 Notes on transport

During the transport of the device with extinguishing agent tank and propelling gas cartridge the following special rules must be taken into account.

Special notes on transport for overland transportation - ADR
UN 3363 DANGEROUS GOODS IN APPARATUS, class 9,
is not subject to the regulations of the ADR

Special notes on transport for sea transportation - IMDG - Code
UN 3363 DANGEROUS GOODS IN APPARATUS, class 9

Special notes on transport for air transportation - IATA DGR
UN 3363 DANGEROUS GOODS IN APPARATUS, class 9,
Packing instructions 916

The safety data sheets for this device and for Novec™ 1230 by 3M™ must be observed and are included with the device during delivery.

Attention!
Prior to the return transport of the device the activation switch must be switched to blocking.

Packaging

Always retain the transport packaging of this device. For maintenance or repair the device may only be sent in the special original transport packaging or a equivalent one.

6. Technical data

Housing dimensions	19“, 1U, 640 mm deep
Material housing	sheet metal
Weight	approx. 12 kg incl. extinguishing agent and propelling gas cartridge
Nominal voltage	24 V DC, via upstream device
Maximum power input	14 watt
Nominal power input	1 watt
Emergency power supply	Is carried out via upstream device and depends on the number of connected devices (approx. 4 h)
Ambient temperature	+10 °C to +35 °C (operation), -20 °C to +65 °C (storage)
Humidity	up to 96 %, non-condensing
Protection category	IP 20
Connections	▪ 1 potential-free change-over contact "pre-alarm" (RJ12 connector) ▪ 1 potential-free change-over contact "fire alarm" (RJ12 connector) ▪ 1 potential-free change-over contact "extinguishing released" (RJ12 connector) ▪ 1 potential-free change-over contact "common failure" (RJ12 connector) ▪ 24 V -3/+5 V nominal voltage / 0.5A, resistive load
Protection volume	max. 3.0 m^3 (for airtight cabinets: the air exchange rate of the switch cabinet system to be protected must not be greater than 10 % within 20 min.)
External devices	▪ connection for push button for manual release ▪ connection for door contact ▪ bus connection for system networking Rittal CMC (RJ12 connector) ▪ connection for external signalling devices
Approvals	▪ electric components meets UL requirements ▪ CE conformity of the extinguishing unit per EC directive 97/23/EC
Extinguishing agent tank	material: aluminium empty volume: approx. 2.0 litres content: ca. 1.8 litres Novec™ 1230 extinguishing agent dispersal by pressure build-up via propelling gas cartridge with integrated electric release device integrated extinguishing agent loss / filling level monitoring (indication of > 15 % loss)

7 Appendix

7.1 Installation-and test report

Date of commissioning / commissioner: _____

Serial number of the device: _____

7.1.1 Procedure to start-up after installation in accordance with chapter 3.2.2

- Connection of the door contact incl. the installation of resistors

7.1.2 Procedure when connecting push buttons for manual release / manual alarm

Push buttons shall be attached preferably at the superordinate DET-AC Plus and/or EFD Plus!
If no push buttons for manual release are to be connected, this point can be ignored.

- Connecting the manual alarm acc. to 2.4.2 to outlet manual alarm 10 (see chapter 2.4)
- Reset the fault signal that appears during connection with the button "reset".
- Releasing the manual alarm: The red LED must flash now and "manual release" and "fire" must be indicated in the display.
- Reset the manual alarm and push the button „reset“.

Connect device (see „connections“, chapter 3.2.3)

- Attach the device to the supply voltage of the upstream DET-AC Plus and/or EFD Plus. Secure that there is no fire message at the upstream master device.
- Interlink the device via the CAN bus connections, proceed in the order of the superordinated device downward.
  Examine the function of the communication by generating a message (e.g. „door open“)

Installation check list

Checking off this check list helps to avoid errors during the installation.

	The equipment was inserted horizontally (examined with water level)
	The number of sampling holes per server cabinet is correct, see chapter 3.2.3 „Installation notes for the sampling pipe“)
	The sampling holes are faced in air flow direction
	Sampling holes are free (clean and not covered by cable harnesses)
	The power plug is attached
	The nozzle is free from cable harnesses and other obstructions
	In case of use of the RJ12 plug for the door contact monitoring the terminal resistance at the clamp connection „input door switch“ was removed.
	With open door „fire extinguishing system blocked“ is indicated on the display (with several server cabinets only one open door is enough) and the green LED flashes
	The door contacts are securely and firmly installed
	The activation switch of the extinguishing unit is switched to “ON” (device is released and ready for use)
	When closing 2 sampling holes the device indicated „pressure too low“
	If mains supply is separated the device continues to run on emergency power supply
	The front plate is firmly connected with the server cabinet with 2 and/or 4 screws
	With closed door„Status OK“ is indicated on the display and on the display a star moves from left to right and only the green LED permanently shines
	Name: Date:
	Device handed over to:

Installation check list

Checking off this check list helps to avoid errors during the installation.

	The equipment was inserted horizontally (examined with water level)
	The number of sampling holes per server cabinet is correct, see chapter 3.2.3 „Installation notes for the sampling pipe“)
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	The activation switch of the extinguishing unit is switched to “ON” (device is released and ready for use)
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	The door contacts are securely and firmly installed
	The activation switch of the extinguishing unit is switched to “ON” (device is released and ready for use)
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	If mains supply is separated the device continues to run on emergency power supply
	The front plate is firmly connected with the server cabinet with 2 and/or 4 screws
	With closed door„Status OK“ is indicated on the display and on the display a star moves from left to right and only the green LED permanently shines
	Name: Date:
	Device handed over to:

7.2 Spare parts, accessories and consumables + tools

Item	Order number
Spare parts	
Extinguishing System DET-AC Plus Slave, complete device	88 9214
Extinguishing tank complete, with nozzle	88 8841
Terminator resistor 22k, 1/10 watt with RJ12 connector (door contact connection) - enclosed with delivery	90 6913
Terminator resistor 1K Ohm, 0.5 watt with RJ12 connector (door contact connection) - already plugged with delivery	90 8119
Terminator resistor 1K8 Ohm, 0.5 watt (for door contact) - already plugged in compression joint with delivery	67 5235
Terminator resistor 470 Ohm, 0.5 watt (for door contact) - already plugged in compression joint with delivery	67 5223
Cable voltage supply	90 3228
CAN bus cable	90 7531
German operating instructions	88 9225
English operating instructions	88 9226
Sliding rail of varying depth	Rittal: DK 7063.880
Cover foil for the device	90 6797
Accessories	
Alarm combination SONFL1 MX (flashing light + alarm horn)	90 6508
Push button for manual release, yellow	88 8845
Tools	

7.3 Trouble-shooting

Fault, Fault Message	Possible Cause	Necessary Measure
Failure door contact	▪ Short-circuit or wire break at the door contact (e.g. cable not attached) ▪ Termination plug is missing, if no door contact is planned, or RJ12 connector and two-pole plug for door contact are attached at the same time ▪ Input and output of the door contact are interchanged	Examination of the door contact plugs. Attach cables or put in termination plugs if necessary. Connect up the door contact properly
Failure push button	▪ Short-circuit or wire break at the push button for manual release (e.g. cable not attached), termination plugs is missing, if no push button for manual release unit is planned	Examination of plugs of the push button for manual release. Attach cables or put in termination plugs if necessary
Failure extinguishant monitoring	▪ Internal wire break or short-circuit to the level sensor of the tank	Advise service
Loss of extinguishant	▪ Device not inserted horizontally ▪ Loss of extinguishant in the tank	Align the device horizontally and examine whether fault message disappears, otherwise advise service
Failure release magnet	▪ Magnet or internal wiring defective	Advise service
Tank full	▪ Extinguishing action was released during mechanical blocking ▪ The DET AC plus detected a fire and the extinguishing action was triggered but the extinguishant tank was however not emptied	Advise service

7.4 Cross-linking / Protection of several switch cabinets

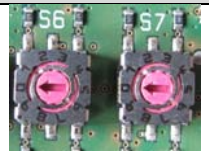
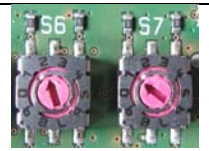
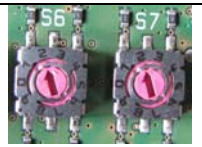
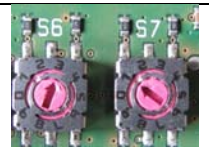
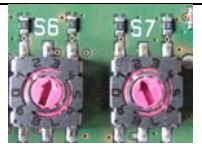
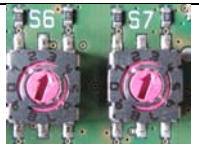
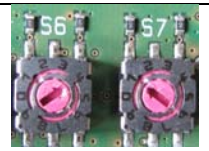
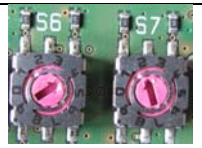
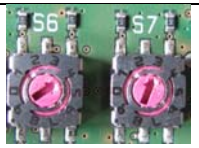
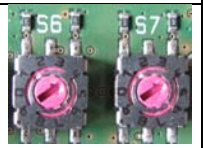
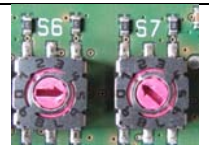
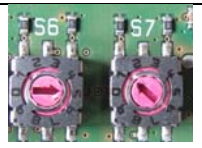
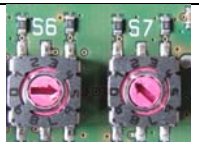
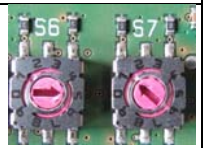
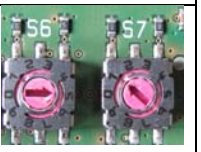
Compatibility of devices of different series

Devices DET-AC Plus Slave of the old series (article number 90 7023) can principally be attached to DET-AC plus Fire Extinguishing Systems of the new series (article number 88 9133), exactly the same devices DET-AC Plus Slave of the new series (article number 88 9214) can be attached to DET-AC plus Fire Extinguishing Systems of the old series (article number 90 6744).
As the case may be that devices of the old series with an old firmware (version 1.2.2.0 or older) cannot not be triggered (failure message “failure ignitation cap.”) or cannot trigger (no failure message), the devices of the old series must at least be equipped with the firmware starting from version 1.2.3.0 within a mixed network of devices of different series.

Function matrix for compatibility from Hard- und Software DET-AC Plus

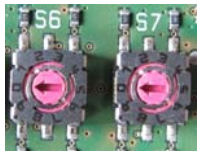
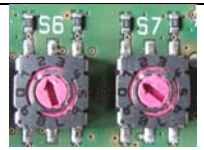
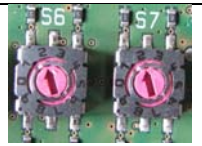
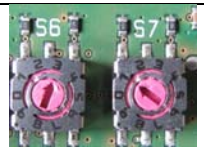
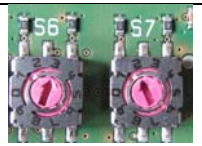
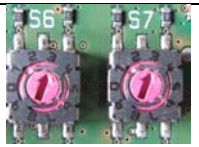
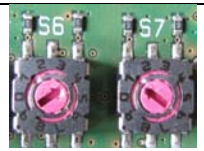
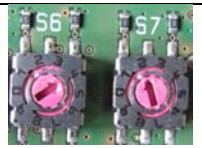
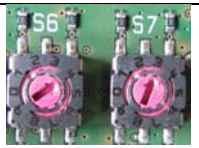
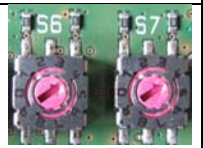
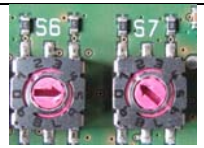
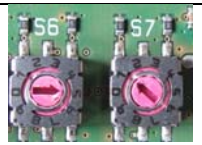
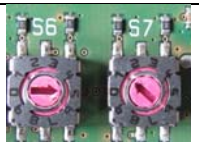
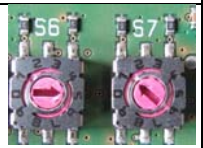
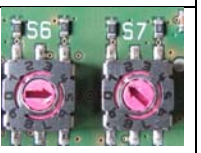
DET-AC Plus Compact / Master- und Slave device

Adjustments in combination with other units

unit Id. number Rittal Id. no.	description	Software version		addressing (S6 + S7)				
				Master	1. Slave	2. Slave	3. Slave	4. Slave
110010576295 7338.110 7338.120 (as of 06/2010)	DET-AC Plus compact	1.3.1.0 min 1.3.0.0	Software_V1.3.0.0_DET_SNBT_GerEng_Master.hex	 S6 = 0 S7 = 0	Not possible!	Not possible!	Not possible	Not possible
110010576287 7338.300 (ab 2009) 7338.320 (as of 06/2010)	DET-AC Plus Slave	1.3.1.0 min 1.3.0.0	Software_V1.3.0.0_DET_T_GerEng_Slave.hex	 S6 = 2 S7 = 1	 S6 = 2 S7 = 2	Not possible	Not possible	Not possible
110010576287 7338.300 (ab 2009) 7338.320 (as of 06/2010)	DET-AC Plus Slave	1.3.1.0 min 1.3.0.0	Software_V1.3.0.0_DET_T_GerEng_Slave.hex	 S6 = 3 S7 = 1	 S6 = 3 S7 = 2	 S6 = 3 S7 = 3	Not possible	Not possible
110010576287 7338.300 (ab 2009) 7338.320 (as of 06/2010)	DET-AC Plus Slave	1.3.1.0 min 1.3.0.0	Software_V1.3.0.0_DET_T_GerEng_Slave.hex	 S6 = 4 S7 = 2	 S6 = 4 S7 = 2	 S6 = 4 S7 = 3	 S6 = 4 S7 = 4	Not possible
110010576287 7338.300 (ab 2009) 7338.320 (as of 06/2010)	DET-AC Plus Slave	1.3.1.0 min 1.3.0.0	Software_V1.3.0.0_DET_T_GerEng_Slave.hex	 S6 = 5 S7 = 1	 S6 = 5 S7 = 2	 S6 = 5 S7 = 3	 S6 = 5 S7 = 4	 S6 = 5 S7 = 5

DET-AC Plus (old version) / Master- und Slave device

Adjustments in combination with other units

unit Id. number Rittal Id. no..	description	Software version		addressing (S6 + S7)				
				Master	1. Slave	2. Slave	3. Slave	4. Slave
110010576285 7338.100	DET-AC Plus	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_SNBT_GerEng_Master.hex	 S6 = 0 S7 = 0	Not possible	Not possible	Not possible	Not possible
110010576283 7338.300	DET-AC Plus Slave	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_T_GerEng_Slave.hex	 S6 = 2 S7 = 1	 S6 = 2 S7 = 2	Not possible	Not possible	Not possible
110010576283 7338.300	DET-AC Plus Slave	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_T_GerEng_Slave.hex	 S6 = 3 S7 = 1	 S6 = 3 S7 = 2	 S6 = 3 S7 = 3	Not possible	Not possible
110010576283 7338.300	DET-AC Plus Slave	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_T_GerEng_Slave.hex	 S6 = 4 S7 = 2	 S6 = 4 S7 = 2	 S6 = 4 S7 = 3	 S6 = 4 S7 = 4	Not possible
110010576283 7338.300	DET-AC Plus Slave	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_T_GerEng_Slave.hex	 S6 = 5 S7 = 1	 S6 = 5 S7 = 2	 S6 = 5 S7 = 3	 S6 = 5 S7 = 4	 S6 = 5 S7 = 5

Dipswitch setting (S3) for door contact old / new for DET-AC Plus Compact / Master- und Slave unit

door contact old
(304534)
max. 4 pieces

22KΩ

door contact new
7320.530
max. 10 pieces

1KΩ

Dipswitch setting (S3) for door contact old / new for DET-AC Plus (old version) / Master- und Slave unit

door contact old
(304534)

22KΩ

door contact new
7320.530
max. 1 pieces

22KΩ

Function matrix for compatibility from Hard- und Software EFD (2 HE) and EFD Plus

EFD Plus (Version) 2 HE

unit Id. number	description	Software version		Dipswitch setting (S3)		addressing (S6 + S7)			
				Door contact old (304534) 22KΩ	Door contact new 7320.530				
110011749800	EFD Plus	1.2.3.1 min 1.2.3.0	Software_V1.2.3_DET_SNB_GerEng_EFD.hex	 6 off - 7 on	 Not possible				

DET-AC Plus Slave
Extinguishing System

EFD Plus 1 HE

unit Id. number Rittal Id. no.	description	Software version		Dipswitch setting (S3)		addressing (S6 + S7)			
				Door contact old (304534 max. 4 piece	Door contact new 7320.530 max. 1 piece				
				22KΩ	1 KΩ				
1100105762286 7338.200	EFD Plus	1.3.1.0 min 1.3.0.0	Sotware_V1.3.0.0_DET_SNB_GerEng_EFD.hex	 6 off - 7 on	 6 on - 7 off				

List of abbreviations

Software_V1.2.3_DET_SNB_GerEng_EFD.hex	→	old unit - only detection
Software_V1.2.3_DET_SNBT_GerEng_Master.hex	→	old unit - detection and extinguishing tank
Software_V1.2.3_DET_T_GerEng_Slave.hex	→	old unit - only extinguishing tank
Sotware_V1.3.1.0_DET_SNB_GerEng_EFD.hex	→	new unit - only detection
Software_V1.3.1.0_DET_SNBT_GerEng_Master.hex	→	new unit - detection and extinguishing tank
Software_V1.3.1.0_DET_T_GerEng_Slave.hex	→	new unit - only extinguishing tank

Compatibility Firmware in combination with old and new units

Type	Firmware	Type	Firmware	yes	no
DET-AC Plus	1.2.3.1	DET-AC Slave Short	1.3.1.0	X	
EFD Plus	1.2.3.1	DET-AC Slave Short	1.3.1.0	X	
DET-AC Short	1.2.3.1	DET-AC Slave Plus	1.3.1.0	X	
EFD Short	1.2.3.1	DET-AC Slave Plus	1.3.1.0	X	

Connection power supply and data line
At first the mains supply is put on at the master device, then each slave device is attached to the voltage output of the upstream device.
Only, if thereafter is no fire message at the display of the master device, the data lines may be attached to the respective upstream devices.

Checking the network:
After the network is set up completely a message has to be generated at each device. Each message must be examined at the master device.
It is recommended for it to operate the door contact of each device.
The device is to be switched to “not blocked” at the blocking switch.

Reading out the condition of the respective devices

The display of the current condition of the fire extinguishing system takes place via the master with the identification Z1 (DET-AC Plus active fire extinguishing system or EFD Plus). On its LCD display the individual devices, after being selected, are indicated. The attached device indicated by the message is to be identified as follows by its individual identifier (Z2 to Z5):

Identifier	Device, to which the message refers
Z1	DET-AC Plus active fire extinguishing system or EFD Plus (each time Master!)
Z2	DET-AC Plus Slave extinguishing system 1
Z3	DET-AC Plus Slave extinguishing system 2
Z4	DET-AC Plus Slave extinguishing system 3
Z5	DET-AC Plus Slave extinguishing system 4

Intake pipes over several cabinets

Installation of device and the intake pipes for the monitoring of several cabinets

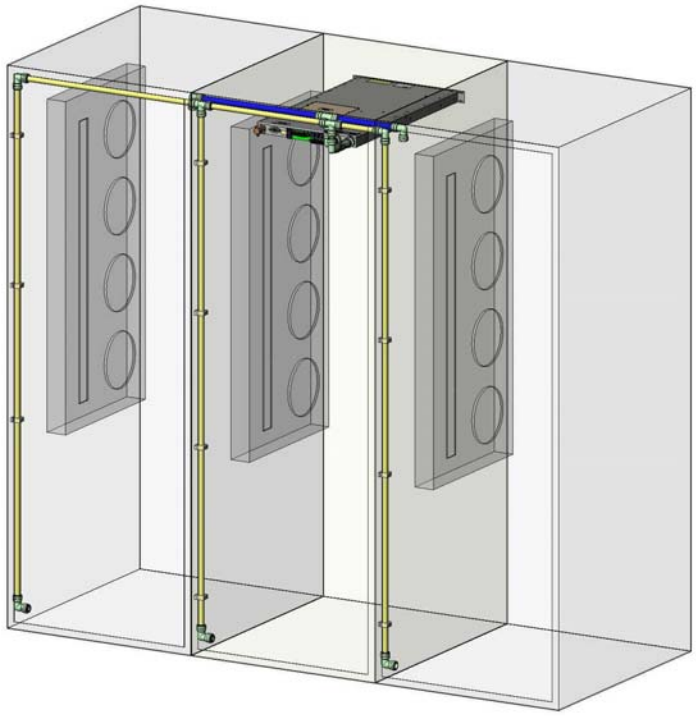
If more than two cabinets are monitored, the upstream device should be placed in a middle cabinet, so that 2 as identical as possible and flow-technically favorable pipe lines are formed.

Note!
If more several cabinets are monitored, which are hermetically locked each against the other, an equalization of pressure is to be installed by means of an air flow re-circulation.

For the pressure balance by means of an air flow re-circulation a further pipe system is to be installed. This pipe system (blue coloured in opposite sketch) is led in each cabinet with T-fittings. The ends of pipe of the air flow re-circulation remain open in each cabinet, so that the air pressure balances itself

In the opposite sketch it is assumed that the cabinets are not locked hermetically against each other.

The devices may be installed only so far away from each other that the length of the intake pipes amounts to max. 20 m. A potential equalization has to be carried out over the grounding of the device.



Number of cabinets	Necessary accessory	Number of intake holes per cabinet (Ø 3 mm)
1	1 x Accessory intake pipe	**4**
2	2 x Extension set intake pipe	**4**
3	3 x Extension set intake pipe	**4**
4	4 x Extension set intake pipe	**3**
5	5 x Extension set intake pipe	**3**

7.5 Declaration of Conformity

Konformitätserklärung
Declaration of Conformity

Minimax Gerät für eine Brandmelde- und Löschsteueranlage
Minimax device for fire detection and extinguishing control system

Gegenstand / Typ: DET-AC Plus Aktivlöschsystem, DET-AC Plus Slave, EFD Plus
Subject / Type: DET-AC Plus Active Extinguishing System

Zum Einsatz in Brandmelde- und Löschsteueranlagen.
For use in fire detection and extinguishing control systems.

Das/Die vorgenannten Bauteile entsprechen in der gelieferten Ausführung den im Folgenden genannten einschlägigen Bestimmungen:
The above mentioned units corresponds in the delivered condition to the relevant regulations:

Angewandte EG Richtlinie: Elektromagnetische Verträglichkeit 2004/108/EG
Applied EC-Directives: Electromagnetic compatibility 2004/108/EC
Angewandte harmonisierte Normen: EN 61000-3-3, EN 55022 Kl B, EN 61000-3-2, EN 50130-4
Applied harmonized standards:
Angewandte EG Richtlinie: Niederspannung 2006/95/EG
Applied EC-Directives: Low Voltage 2006/85/EC
Angewandte harmonisierte Normen: EN 60950, EN 60950/A11
Applied harmonized standards:
Angewandte EG Richtlinie: RoHS 2002/95/EC
Applied EC-Directives:

Es sind keine anderen als die oben beschriebenen Anwendungen im Rahmen der technischen Spezifikationen und unter Beachtung aller einschlägigen Errichterbestimmungen zulässig.
No other than the above described use within the scope of the technical specifications and paying attention to all safety regulations for erection is permitted.
Schnittstellen zu Anlagen und Systemen, die in den Geltungsbereich anderer als obengenannter europäischer Regelwerke fallen, sind ggf. gesondert zu berücksichtigen.
Interfaces to systems, which are under the scope of other than above mentioned European rules must be specially considered if needed be.
Die Produkte der Minimax GmbH & Co. KG erfüllen alle Anforderungen des durch den VdS zertifizierten QM-Systems gemäß DIN EN ISO 9001
The products of the Minimax GmbH & Co. KG comply with all requirements of VdS certified QM-system acc. to DIN EN ISO 9001

Diese Erklärung wird abgegeben durch:
This declaration has been stated by:

Art.-Nr.: 907313 Äi 01

Bad Oldesloe, den 20.12.2007

Minimax GmbH & Co. KG Leiter Qualitätswesen
Minimax GmbH & Co. KG Quality Management
Dipl.-Ing. Thomas Jegodtka

Minimax GmbH & Co. KG Produkt Linien Manager Brandmeldeanlagen
Minimax GmbH & Co. KG Product Line Manager Fire Detection Systems
Dipl.-Ing. André Lickefett

P:\Projekte\Melder\MX\MX_one_unit\Doku\Konformitätserklärung_DET_AG_907313.01.doc, Version 1.1.0 BETA(06)

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Fax: +49 4531 803-248
www.minimax.de

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AG Lübeck HRA 4797 HL
Komplementärin:
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AG Lübeck HRB 2082 OD

Unsere Ust-Ident-Nr.: DE813746399
Unsere Steuer-Nr.: 30 289 45306

Geschäftsführer:
Klaus Hofmann (Vorsitzender)
Dr. Volker Bechtloff
Wolfgang Hartwig
Vorsitzender des Aufsichtsrats:
Dr. Dietrich Rümker

HypoVereinsbank AG, Hamburg
BLZ 200 300 00 Kto.-Nr. 400 7161
IBAN DE61 2003 0000 0004 0071 61
SWIFT-BIC: HYVEDEMM300

Deutsche Bank AG
BLZ 230 707 10 Kto.-Nr. 18 20 430
IBAN DE46 2307 0710 0182 0430 00
SWIFT-BIC DEUTDEHH222

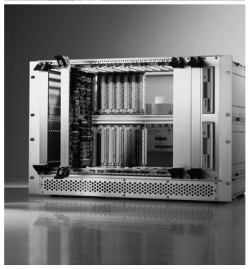
West LB AG, Düsseldorf
BLZ 300 500 00 Kto.-Nr. 135 1618
IBAN: DE30 3005 0000 0001 3516 18
SWIFT-BIC: WELADEDD

Dresdner Bank AG
BLZ 230 800 40 Kto.-Nr. 3111 29500
IBAN DE15 2308 0040 0311 1295 00
SWIFT-BIC DRESDEFF230

Notes

Schaltschrank-Systeme
Industrial Enclosures
Coffrets et armoires électriques
Kastsystemen
Apparatskåpssystem
Armadi per quadri di comando
Sistemas de armarios
インダストリアル エンクロージャー

Stromverteilung
Power Distribution
Distribution de courant
Stroomverdeling
Strömfördelning
Distribuzione di corrente
Distribución de corriente
分電・配電システム



Elektronik-Aufbau-Systeme
Electronic Packaging
Electronique
Electronic Packaging Systems
Electronic Packaging
Contenitori per elettronica
Sistemas para la electrónica
エレクトロニクス パッケージシステム

System-Klimatisierung
System Climate Control
Climatisation
Systeemklimatisering
Systemklimatisering
Soluzioni di climatizzazione
Climatización de sistemas
温度管理システム

IT-Solutions
IT Solutions
Solutions IT
IT-Solutions
IT-lösningar
Soluzioni per IT
Soluciones TI
ITソリューション

Communication Systems
Communication Systems
Armoires outdoor
Outdoor-behuizingen
Communication Systems
Soluzioni outdoor
Sistemas de comunicación
コミュニケーションシステム

11/09 · XXX XXX

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