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Löschsystem DET-AC III Slave DET-AC III Slave Extinguishing System



DK 7338.321

Montage-, Installations- und Bedienungsanleitung
Mounting, installation and operating instructions

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



This manual contains important information on the safe and efficient assembly, installation, commissioning, and maintenance as well as on safe and efficient handling of the Extinguishing system DET-AC III Slave (hereinafter referred as the "system"). This operating instruction is an integral part of the system and must be kept in the immediate vicinity of the extinguishing zone at all times. It is intended for the trained Authorized Distributor and the owner of the system
↳ *Chapter 2.8.1 „Qualifications” on page 15.*

This operating instruction must have been carefully read before commencing any task. The prerequisite for safe operation of the system is compliance with the specified safety instructions and procedural instructions. In addition to the information provided in this instruction, all local accident prevention and general safety regulations applicable for the system's area of implementation must also be complied with.

Translation of the original operating instructions

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Part number of the German original: 916006

Document identification:

Document name	---
Language	en_US
Document no.	100046741
DOC ID	100056439
Approval / modification no.	ES15-006
Part no.	916007
Revision	02
Version	00
Edition	08-2015

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1 General

1.1 Overview

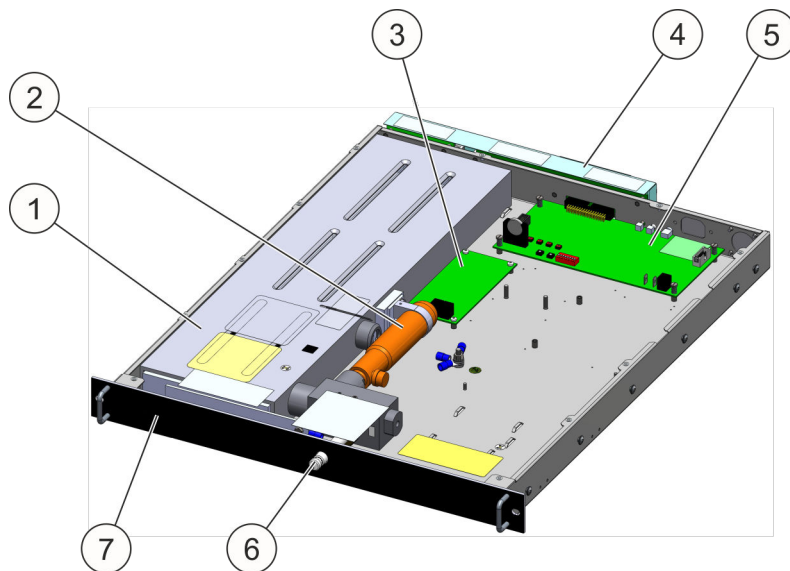


Fig. 1: Structure of the system

- | | |
|--|---------------------|
| 1 Tank (extinguishing agent container) with fill level monitoring and release device | 5 Control card CPU3 |
| 2 Propellant cartridge | 6 Discharge nozzle |
| 3 Loss monitoring card | 7 Front panel |
| 4 Connection strip (connection technology card / network interface card) | |

1.2 Abstract

The DET-AC III Slave Extinguishing system, which is intended for installation in closed switch cabinet systems, is a compact unit that was developed to extinguish fires. A superordinate system (active extinguishing system DET-AC III Master or aspirating smoke detection system EFD III) is to be in place in order to activate this unit.

Novec™ 1230 by 3M™ is used as the extinguishing agent which vaporizes at the discharge nozzle and spreads evenly across the extinguishing zone. This extinguishes the fire by extracting heat energy from the flames.

Alarms and failures can be transmitted to a superordinate position (building control system or permanently manned location) via potential-free contacts or via the Monitoring System CMC (a Rittal product).

The compact system with a space requirement of only one rack unit is intended for installation in the upper third of the closed switch cabinet system to be protected.

1.3 Scope of delivery

Designation	Piece	Part number
Extinguishing system DET-AC III Slave	1	7338.321
CAN bus connecting cable (Master/Slave) ³⁾	1	907531
Cable power supply ³⁾	1	903228
Resistance 1.8 kΩ for manual call point ²⁾	1	675235
Resistance 1.8 kΩ for alarms ²⁾	1	675235
Terminating resistor 47R with rectifying diode 1N4007 for means of alarm ²⁾	1	917751
Resistance 470 Ω 1/2 W for door contact ³⁾	1	675223
Terminating resistor 1K ³⁾	1	908119
Terminating resistor 22K ³⁾	1	906913
Fillister head screw M6x16 (to fasten the front panel in the 19" cabinet) ³⁾	2	607284
Fillister head screw DIN 7985 M5x16 (fastening rear side rail) ³⁾	4	906928
Fillister head screw M4x6 similar to ISO 7380 (assembly side rails) ³⁾	12	889264
Plate DET-AC III Slave ³⁾	1	916088
Left rail ³⁾	1	915914
Right rail ³⁾	1	915915
Operating instruction German ³⁾	1	916006
Operating instruction English ³⁾	1	916007
Safety data sheet 3M™ Novec™ 1230, German ³⁾	1	917711
Safety data sheet 3M™ Novec™ 1230, English ³⁾	1	917712
Safety data sheet DET-AC, German ³⁾	1	920329
Safety data sheet DET-AC, English ³⁾	1	920330

1) ... pre-assembled

2) ... assembled

3) ... enclosed

Accessories

- Suction pipe system (part number 7338.130)
- Access sensors (part number 7320.530)

- Monitoring System CMC III
 - CMC III Processing Unit (part number 7030.000), optional
 - CMC III Compact Processing Unit (part number 7030.010), optional
- Depth-variable slide rails (part number 5501.480), optional

1.4 Limitations of liability

All specifications and information provided in this operating instruction have been compiled in consideration of all applicable standards and regulations as well as the state of the art. The manufacturer accepts no liability for the following damage:

- Failure to follow this operating instruction
- Failure to follow local provisions and any regulations regarding the maintenance of fire extinguishing systems
- Operating the system in environmental and usage conditions other than the ones for which the system has been designed ↪ *Chapter 12 „Technical data” on page 76*
- Use for other than the intended purpose
- Unauthorized technical changes
- Use of components not included in the system's scope of delivery
- Non-compliance with maintenance intervals
- Non-performance of maintenance
- Maintenance errors due to non-compliance with current maintenance instructions / current maintenance notes of the manufacturer
- Damage for which a third party is to blame
- Intentional damage/manipulations
- Damage resulting from an unauthorized modification to the system
- Repairs not carried out according to regulations
- Actions that are not in the area of those described in this operating instruction

Use of the system must comply with local regulations, laws and standards. The owner is responsible for the appropriate selection, intended use and compliance with all standards, codes and ordinances.

The construction and use of the system described in this operating instruction are only to be used for the purposes that are shown and described. The manufacturer or private labeler provides no warranty or guarantee for uses not described in this specification or for uses that do not comply with legal and local regulations.

Graphs or reports used in this operating instruction are for illustrative purposes only, are not representative or descriptive of any specific design and can deviate from the actual version of the system.

The manufacturer or private labeler and its representatives disclaim use of the depictions, graphs and reports for any purpose other than illustration; any other application or usage is solely the responsibility of the owner.

2 Safety

This section provides an overview of all important aspects that are essential for the protection of personnel as well as safe and trouble-free operation. Additional task-specific safety instructions will be provided in the sections that refer to the individual life stages of the plant.

2.1 Safety and warning notices

Safety instructions are marked with symbols in this manual. The safety instructions are always introduced by signal words that express the extent of the danger.

 **DANGER**

This combination of symbol and signal word indicates a hazardous situation which, if not avoided, will result in death or serious injury.

 **WARNING**

This combination of symbol and signal word indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION**

This combination of symbol and signal word indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

This combination of symbol and signal word indicates a hazardous situation which, if not avoided, may result in property and environmental damage.

Further markings

INFORMATION

This symbol emphasizes useful tips and recommendations as well as information for efficient and trouble-free operation.

2.2 Safety instructions in behavior guidelines

Safety instruction can refer to specific, individual behavior guidelines. Such safety guidelines (warning messages) are embedded in behavior guidelines so that they do not interrupt the reading flow when executing the action. The signal words described above are used.

Example:

1. ➤ Unscrew screw.
2. ➤ **⚠ CAUTION! Clamping danger on the cover!**
Carefully close the cover.
3. ➤ Tighten screw.

2.3 Intended use

This system is designed exclusively for the intended use described here.


The system is designed exclusively to extinguish smoldering or developing fires in closed 19" switch cabinet systems.

The system must only be operated using the extinguishing agent Novec™ 1230 by 3M™.

The system must only be used in areas which personnel do not enter.

Typical applications for using the system is the protection of closed 19" switch cabinets. This, for example, includes:

- IT, server and network technology
- Production controls
- Telecommunications equipment
- Power supply and control systems

The system may only be operated within the operating conditions specified in  *Chapter 12 „Technical data” on page 76.*

Intended use also includes compliance with all specifications regarding mounting, installation, checking, inspection and maintenance, which are described in this operating instruction:

 *Chapter 5 „Mounting and installation” on page 29*

 *Chapter 10 „Repairs” on page 61.*

2.4 Misuse

Any use that extends beyond the intended use, or any other use of the system is considered misuse.

 **WARNING**

Danger due to misuse!

Misuse of the system can lead to personal injury and property damage.

- No structural changes to the device to be protected or to the system may be performed.
- Do not use the device to be protected in any way that is contrary to that which was considered by the trained Authorized Distributor.
- Do not block the discharge nozzles.

The system must **not** be used for the following incendiaries:

- Chemicals that release oxygen.
- Mixtures containing oxidizing substances (e.g. sodium chlorate, sodium nitrate, explosives, gunpowder).
- Chemicals capable of thermally decomposing autonomously (e.g. certain organic peroxides).
- Reactive metals (e.g. sodium, potassium, magnesium, titanium or zirconium) and reactive hybrids or metal amides.

The system must **not** be used under the following operating conditions:

- Hot surfaces above 500 °C (932 °F), which due to operational conditions have been heated to temperatures in excess of the extinguishing agent's decomposition temperature.

2.5 Structural changes

This system has been tested for the intended use. Consult an Authorized Distributor if changes to the device are planned.

2.6 Basic dangers

The following section describes remaining risks that can arise from the system even with intended use.

In order to reduce risks of personal injury and property damage and avoid dangerous situations, the safety instructions listed here and the safety instructions in the other sections of this operating instruction must be followed.

2.6.1 General dangers associated with fire extinguishing systems

 WARNING**Risk of injury from faulty release!**

A faulty release of the system may cause injuries and property damage.

- Release the system via manual call points only in the event of a fire.
 - Protect the manual call points in the extinguishing zone from inadvertent actuation.
 - Block the system before performing any work in the extinguishing zone generating heat and smoke.
-

2.6.2 Dangers when the system is released

 WARNING**Risk of injury from developing products of decomposition and fire smoke!**

Fires generate decomposition products which may lead to chronic health impairments if inhaled and if there is contact with the skin.

- Do not use the system if, in normal operation, surface temperatures in excess of 500 °C (932 °F) are to be expected.
 - Keep the extinguishing zone closed in the event of a fire, e.g. do not open any of the switch or server cabinet doors.
 - After a fire, the extinguishing zone is not to be opened by the safety officer until the danger of re-ignition has subsided.
-

 WARNING**Risk of injury from shock!**

The release of the system involves sudden noises from the discharged agent which may surprise persons to the extent that they suffer shock.

- Inform all persons staying close to the extinguishing zone about the existence of the system and the possibility of its sudden release.
 - Make persons familiar with the procedures required in the event of an alarm, a fire or release of the system.
-

 WARNING**Risk of injury from noise!**

High noise levels due to acoustical alarms (e.g. signal horns) can cause hearing damage.

- Stay out from the immediate vicinity of acoustic alarm equipment.
-

NOTICE

Property damage from cooling ambient air!

The discharged extinguishing agent extracts heat from the ambient air contained in the extinguishing zone. This cools down the extinguishing zone by as much as 20 °C (36 °F) when fighting a fire.

- Do not mount components that are sensitive to cold and varying temperatures in the immediate vicinity of the discharge nozzle.
-

NOTICE

Property damage from falling and flying objects!

The discharge velocity of the extinguishing agent may cause unsecured objects to tip over or become airborne.

- Do not place any loose objects into the outflow area of the discharge nozzle.
-

2.7 Behavior in the event of a fire

2.7.1 Preventive steps

- Always be prepared for fires and accidents!
- Keep first-aid equipment (first-aid kit, blankets, etc.) and substitute extinguishing agents (e.g. fire extinguisher) in proper working order and readily available.
- Familiarize personnel with accident prevention, first aid and rescue equipment as well as options for releasing the system manually.
- Keep access paths clear for rescue vehicles.

2.7.2 Steps in the event of a fire

 **WARNING**

Risk of death due to fire!

Severe fire smoke may develop when a fire erupts and while the fire is being extinguished. Fire smoke development may result in severe airway damage or death.

- Keep the extinguishing zone closed in the event of a fire, e.g. do not open any of the switch or server cabinet doors.
 - After a fire, do not have the extinguishing zone opened by the safety officer until the danger of re-ignition has subsided.
 - Shut down all consumers of the power supply that are in the cabinet.
-

Take the following steps when a fire erupts:

- Initiate first-aid measures if necessary.
- Alert any endangered persons in the adjoining areas.

- Notify the fire department and/or emergency medical services.
- Notify the person in charge at the system's location.

2.8 Personnel requirements

2.8.1 Qualifications

The different tasks described throughout this manual require different qualifications and skills from the persons entrusted with these tasks.

WARNING

Risk from insufficiently qualified personnel!

Insufficiently qualified personnel is incapable of assessing the risk involved in handling the system and may cause severe or fatal injuries to themselves or others.

- Allow only qualified personnel to perform the work.

All work must be limited to personnel that can be expected to complete the work in a reliable manner. Persons whose ability to respond is impaired, for example, by drugs, alcohol or medication are not permitted.

Definition of the qualifications:

Authorized Distributor

The Authorized Distributor has verifiably undergone training provided by the manufacturer during which the company was made familiar with the knowledge and procedures necessary to install, commission and service the system in a safe manner.

Person in charge of the system

The person in charge of the system has verifiably been given instructions by the company that installed the system as to the specifics of the tasks entrusted to him/her and all possible dangers that may arise from improper conduct. The person in charge of the system has been appointed by the owner as the person who is responsible for the correct and proper completion of the work and inspections performed on the system.

Qualified electrician

The qualified electrician is capable of performing work on electrical systems and independently detecting and avoiding any possible risks due to his/her long years of expertise and experience and his/her familiarity with all applicable standards and regulations.

A qualified electrician must also provide proof of his/her professional qualification that confirms his/her capacity to perform work on electrical systems.

The qualified electrician must comply with the provisions of all applicable legal regulations regarding accident prevention.

2.8.2 Unauthorized personnel



Risk of injury due to unauthorized personnel!

Unauthorized personnel who do not meet the requirements described herein are not familiar with the risks involved in releasing and/or blocking the system. This creates a risk of injury.

- Keep unauthorized personnel away from the system.
 - Make sure that a person in charge of the system is available who has the knowledge necessary to handle the system properly.
-

2.8.3 Instruction

The Authorized Distributor must instruct the owner's person in charge of the system in the handling of the system and subsequently hand over the operating instruction to this person. For better traceability an instruction report must be drawn up with at least the following contents:

- Date of the instruction
- Name of the person being instructed
- Content of the instruction
- Name of the instructor
- Signatures of the instructed person and the instructor
- Part number and serial number of the system.

2.9 Environmental protection

NOTICE

Danger to the environment due to incorrect handling of materials that can harm the environment!

In case of incorrect handling of materials that can harm the environment, especially improper disposal, there can be significant damage to the environment.

- Always observe the notes below about the handling of materials that can harm the environment and their disposal.
 - If materials that can harm the environment accidentally escape into the environment, take suitable measures immediately. In case of doubt, inform the responsible authority about the damage and ask what suitable measures to take might be.
-

Extinguishing agent Novec™ 1230

The extinguishing agent has been classified as slightly reactive to water. It must be disposed of in accordance with all applicable local waste disposal regulations. Observe the safety data sheet provided by the extinguishing agent's manufacturer 3M™. The photolytic half-life of the extinguishing agent is 3 – 5 days. The global warming potential (GWP) value is 1, while the value of the ozone decomposition potential (ODP) is 0.

2.10 Owner's responsibility

2.10.1 Owner

The owner is the person or entity that operates the system himself/itself for commercial or economic purposes, or who transfers the device to a third person for use/application, and who bears the legal responsibility for protecting the user, personnel, or third parties.

2.10.2 Owner's obligations

- It is the owner's responsibility to ensure that the system complies with the local provisions and regulations applying to the operation of extinguishing systems using the extinguishing agent Novec™ 1230 and verify the system's operability. In this regard, the following particularly applies:
 - The owner must comply with the applicable regulations as well as all additional local regulations applying to the operation of the system.
 - The owner must always observe the inspection intervals specified in this operating instruction.
 - The owner must perform these inspections and operate the system following the procedural instructions described throughout this operating instruction.
 - The owner must document the results of the inspections in the report log.
 - The owner must report any detected defects and/or damage to the Authorized Distributor, which he/she is not authorized to rectify independently.
 - The owner must document all shutdowns and failures the system experiences in the report log of the system.
- The "Occupational Safety and Health Act" of 1970 specifies that a safe workplace must be provided at all times for execution of tasks. To this end, the owner must ensure that the system is inspected and operated in accordance with all applicable commercial, industrial, local, federal and state laws, standards and regulations.
- The owner must ensure that the personnel performing the work have the qualifications necessary to complete the task.
- The owner must ensure that all employees who handle the system have read and understood this operating instruction. In addition, the owner must train personnel and inform them of dangers at regular intervals.
- The owner must ensure that all employees working in the extinguishing zone of the system have been informed of the existence of the system and know the risks involved and the steps necessary to handle the system (e.g. behavior in the event of a fire or inadvertent release).

- The owner must appoint a person in charge of the system, who will be instructed by the Authorized Distributor about how to safely perform tasks and checks at the owner's site of operation. The owner will confirm in the documentation of the Authorized Distributor that these instructions have been given.
- The owner must confirm to the Authorized Distributor that the system's function and mode of operation have been understood and the system was ready for operation when accepted by the owner.
- The owner must ensure the availability of substitute extinguishing agents suitable for fire fighting in case the system is taken out of operation/disassembled.

2.11 Responsibility of the Authorized Distributor

2.11.1 Authorized Distributor

The Authorized Distributor is the entity that installs the system, commissions the system, and can perform the service on the system.

2.11.2 Obligations of the Authorized Distributor

- The Authorized Distributor must ensure that the extinguishing system complies with the provisions and regulations applicable for installation of extinguishing systems in enclosed equipment and that the system has been correctly chosen for the protection of this equipment (correct nominal fill, density given, ...). In this regard, the following particularly applies:
 - The Authorized Distributor must comply with the applicable local regulations, and consider these regulations in the selection of the system.
 - The Authorized Distributor must take the current state of the technology into consideration at all times.
- The "Occupational Safety and Health Act" of 1970 specifies that a safe workplace must be provided at all times for execution of tasks. To this end, the Authorized Distributor must ensure that the system is erected, installed, and maintained in accordance with all applicable commercial, industrial, local, federal and state laws, standards and regulations.
- The Authorized Distributor must label the system and affix all necessary information where it is permanently visible.
- The Authorized Distributor must ensure that the personnel performing the tasks have the qualifications necessary for execution of the tasks.
- The Authorized Distributor must instruct a responsible person appointed by the owner in the safe execution of the tasks and inspections that must be executed by the owner, and document execution of this instruction.
- The Authorized Distributor must document the actual status of the system at the time of transfer and inform the owner's responsible person of the actual status.

2.12 Safe operation

The system described here was manufactured in accordance with state-of-the-art technology and recognized safety rules and exhibits a high degree of operational safety.

Nevertheless, improper or non-intended use / application of this system can cause impairments to the system or to other assets.

The system must only be used in a fully functional, undamaged state.

The information provided in this operating instruction regarding installation, operation and maintenance of the system is intended to aid proper, safe and failure-free operation. As regulations in this regard can deviate from each other due to worldwide use, the applicable national regulations and laws at the site of operation are to be observed in so far as they contradict the information provided in this operating instruction. As a general rule, the following information in particular is to be observed / adhered to:

- National safety and accident prevention regulations.
- National standards and laws; in particular those concerning hazard detection systems.
- National assembly and construction regulations.
- Generally recognized rules of technology.
- This operating instruction and the warnings and safety instructions contained within it.
- Parameters and technical data of this system.

If it can be assumed that safe operation is no longer possible (e.g. in the event of damage), the system is to be taken out of service immediately and secured against accidental commissioning.

2.13 Spare parts

Only original spare parts may be used ↪ *Chapter 11 „Spare parts, accessories, consumables and tools” on page 74.*

3 Structure, function and connections

3.1 Structure

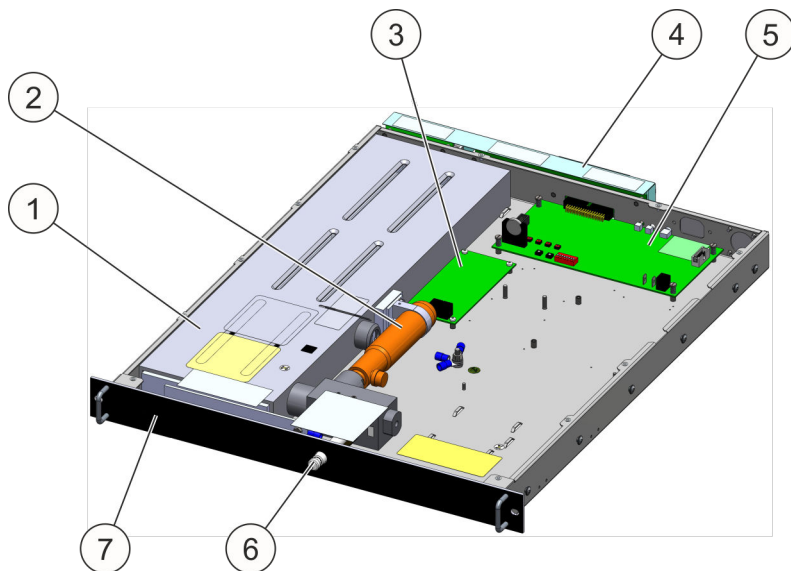


Fig. 2: Structure of the system

- | | |
|--|---------------------|
| 1 Tank (extinguishing agent container) with fill level monitoring and release device | 5 Control card CPU3 |
| 2 Propellant cartridge | 6 Discharge nozzle |
| 3 Loss monitoring card | 7 Front panel |
| 4 Connection strip (connection technology card / network interface card) | |

3.2 Function

In the event of a release, the system is triggered by a superordinate system (Active extinguishing system DET-AC III Master or aspirating smoke detection system EFD III). The release device is triggered electrically whereby the propellant cartridge (Fig. 2/2) is opened and the foaming agent flows into the tank (Fig. 2/1). The relay output „*Extinguishing*” is triggered. The foaming agent forces the extinguishing agent to the discharge nozzle (Fig. 2/6). At the nozzle, the extinguishing agent vaporizes and develops the concentration necessary for extinction in the switch cabinet to be protected.

The fill level monitoring, which is integrated in the tank, reports an extinguishing agent loss to the electronic evaluation unit of the superordinate system, which then shows a failure (extinguishing agent loss) on the display. The relay output „*Common failure*” is triggered.

The power supply for the system is ensured by means of the superordinate system.

The operation and display of the current state of the system is by means of the superordinate system.

All messages can be read via the display on the superordinate system.



Fig. 3: Front view



Fig. 4: Rear view

3.3 Connections

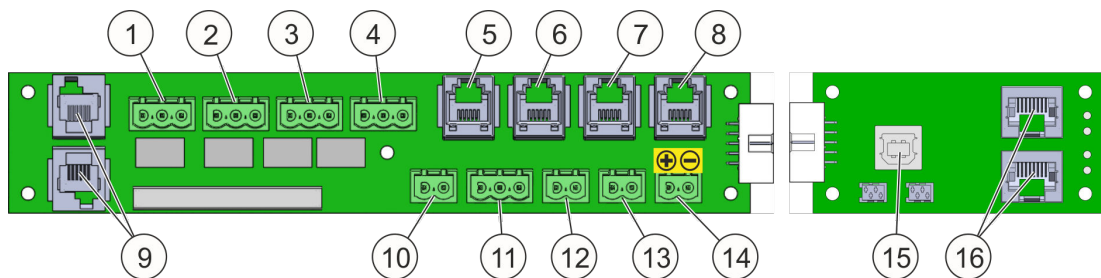


Fig. 5: "AT3 connection technology" card (left) and "NW network interface" card (right)

- 1 Connecting terminal for relay output „Pre-alarm” ↪ Chapter 3.3.1 „Relay outputs” on page 23
- 2 Connecting terminal for relay output „Fire alarm” ↪ Chapter 3.3.1 „Relay outputs” on page 23
- 3 Connecting terminal for relay output „Extinguishing” ↪ Chapter 3.3.1 „Relay outputs” on page 23
- 4 Connecting terminal for relay output „Common failure” ↪ Chapter 3.3.1 „Relay outputs” on page 23
- 5 Plug (RJ12) for door contact switch connection ↪ Chapter 3.3.2 „Door contact switch” on page 24
- 6 Plug (RJ12) for connection to Rittal Monitoring System CMC („failure”) ↪ Chapter 3.3.3 „Interfaces to the Monitoring System CMC III / CMC-TC” on page 24
- 7 Plug (RJ12) for connection to Rittal Monitoring System CMC („fire alarm”) ↪ Chapter 3.3.3 „Interfaces to the Monitoring System CMC III / CMC-TC” on page 24
- 8 Plug (RJ12) for connection to Rittal Monitoring System CMC („pre-alarm”) ↪ Chapter 3.3.3 „Interfaces to the Monitoring System CMC III / CMC-TC” on page 24
- 9 Connection for networking "DET-AC III Master - DET-AC III Slave" (RJ12-DEC) ↪ Chapter 3.3.8 „Connection for networking” on page 26
- 10 External alarm device ↪ Chapter 3.3.4 „Connection of external alarm device” on page 25 (delivery with terminating resistor 47 Ω and diode 1N4007)
- 11 Connection for external fill level monitoring and triggering of external tank (only activated in the aspirating smoke detection system EFD III)
- 12 Plug for manual call point (delivery with terminating resistor 1,8 kΩ) ↪ Chapter 3.3.5 „Manual call point connection” on page 25
- 13 Door contact plug 2 (delivery with two terminating resistors: 1,8 kΩ and 470 Ω) ↪ Chapter 3.3.2 „Door contact switch” on page 24
- 14 Power supply (U_B) ↪ Chapter 3.3.6 „Power supply” on page 25
- 15 USB port (type B) ↪ Chapter 3.3.7 „USB port” on page 26
- 16 CAN bus CMC III interface (RJ45) ↪ Chapter 3.3.3 „Interfaces to the Monitoring System CMC III / CMC-TC” on page 24

Wiring

The following applies to wires: Each of the wires to be used must not be longer than 30 m per clamp connection. The minimum wire cross section is 0.5 mm².

INFORMATION

The information provided above does not apply for the connection cable to Monitoring System CMC. Details on cabling and the cable cross-section can be found in the instructions of the CMC.

Mechanical connection data of the clamp connection

Wire type	minimum	maximum
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 ferrule, without plastic sleeve	0.25 mm ²	2.5 mm ²
Conductor cross section flexible with wire end ferrule, with plastic sleeve	0.25 mm ²	2.5 mm ²
Conductor cross section flexible AWG/kcmil	24	12
Two conductors of equal cross sections rigid	0.2 mm ²	1 mm ²
Two conductors of equal cross sections flexible	0.2 mm ²	1.5 mm ²
Two conductors of equal cross sections flexible with wire end ferrule without plastic sleeve	0.25 mm ²	1 mm ²
Two conductors of equal cross sections flexible with twin wire end ferrule with plastic sleeve	0.5 mm ²	1.5 mm ²

3.3.1 Relay outputs

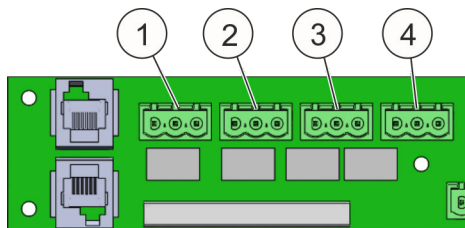
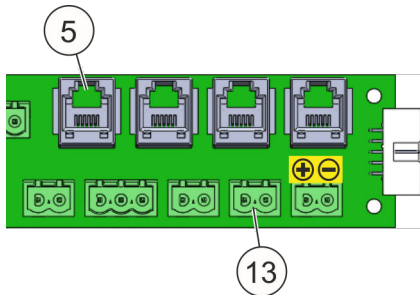


Fig. 6: Relay outputs

The system has four potential-free relay outputs (Fig. 6/1 to 4) each with one changeover contact.

3.3.2 Door contact switch



Door contact switches for the doors of the cabinet to be protected can be connected to connections "5" and "13" (Fig. 7). This serves to monitor the cabinet door positions of the object to be protected. When a door to the switch cabinet to be protected is opened, the extinguishing of the system is blocked and the message „Blocking by door cont.“ appears in the display.

Fig. 7: 3.3.3 Connections door contact switch

The installation of door contact switches is described in [Chapter 5.3.3 „Door contact / blocking“](#) on page 39.

3.3.3 Interfaces to the Monitoring System CMC III / CMC-TC

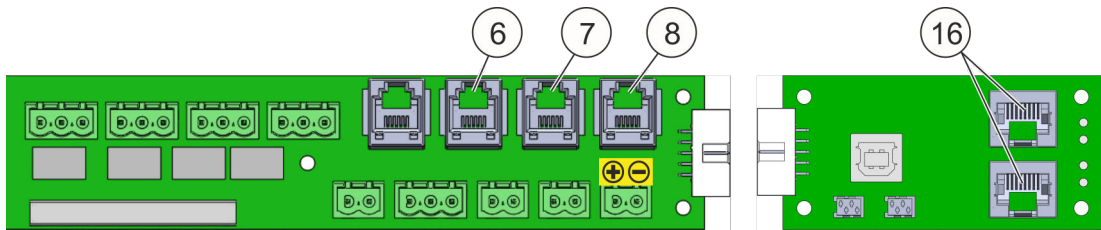


Fig. 8: CMC connections

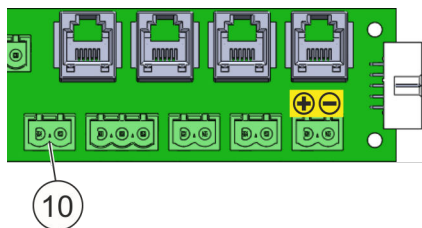
The active extinguishing system DET-AC III Master has a CAN bus CMC III interface (Fig. 8/16) for connecting to the CMC III monitoring system. All states and messages that are listed in the table shown below can be queried through it.

Binary alarm states	Binary failure states	Messages
External release	Failure manual call point	Mains failure
Fire	Blocking by door cont.	Failure ignition cap.
Manual release	Failure door contact	
Pre-alarm	Failure power supply unit (PSU)	
	Failure battery	
	Failure air flow (pressure too high)	
	Failure air flow (pressure too low)	
	Failure detector 1	
	Failure detector 2	
	Failure communication	
	Failure extinguishing output	

Binary alarm states	Binary failure states	Messages
	Extinguishing agent loss	
	Maintenance interval expired	
	Battery change required	

The CMC-TC is the predecessor to the CMC III and does **not** have a CAN-bus interface. The three states „Failure” (Fig. 8/6), „Fire alarm” (Fig. 8/7) and „Pre-alarm” (Fig. 8/8) can be queried via the RJ12 connectors (Fig. 8) using a CMC-TC I/O Unit.

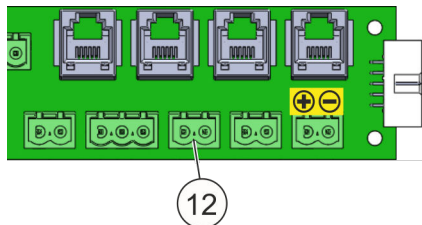
3.3.4 Connection of external alarm device



An acoustic or visual alarm device can be connected to the output "external alarm device" (Fig. 9/10). When the second fire alarm threshold is reached, the output switches the system voltage (21 V to 27 V) to the connection technology at an output current of ≤ 500 mA.

Fig. 9: Connection of external alarm device

3.3.5 Manual call point connection

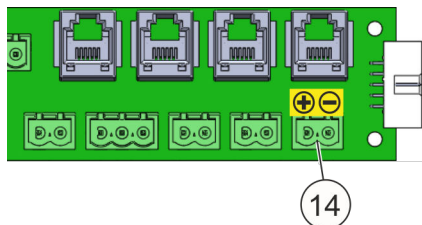


An externally accessible manual release device (e.g. manual call point) can be integrated in the manual call point connection (Fig. 10/12).

When connecting a release device, observe the 1.8 k Ω terminating resistor.

Fig. 10: Manual call point connection

3.3.6 Power supply



A 2-pole connection (Fig. 11/14) with an output current of 21 to 27 V DC is available for the DET-AC III Slave power supply in case of a DET-AC III Master and DET-AC III Slave combination of extinguishing units. This output is protected by a 500 mA fuse and supplied with emergency power.

Fig. 11: Power supply

In the case of the power supply, the voltage can drop to 21 V DC solely through batteries (in the event of mains failure). The power is shut off automatically below 21 V DC (deep discharge protection).

3.3.7 USB port

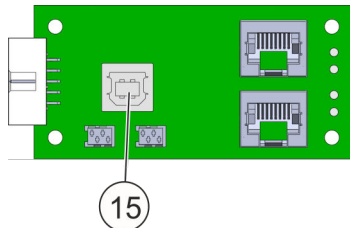


Fig. 12: USB port (type B)

Operating states or results can be downloaded and settings can be made via the USB port (Fig. 12/15). This, for example, includes reading out the error memory, setting the time and date, uploading new Firmware. Further information ↗ *Chapter 9 „Maintenance program”* on page 54.

INFORMATION

The USB port is not suitable as a power source.

3.3.8 Connection for networking

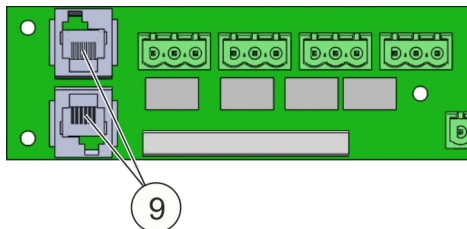


Fig. 13: Connection for networking

The system DET-AC III Slave is connected via the connections RJ12-DEC (Fig. 13/9). A total of up to four additional extinguishing systems can be controlled via the active extinguishing system DET-AC III Slave. Further information in the operating instruction of the extinguishing system DET-AC III Slave.

4 Transport instructions

WARNING

Risk of injury due to falling or tilting packages!

Packages can have an eccentric center of gravity. The package can tip over and fall if handled incorrectly. Severe injuries can be caused by falling or tilting packages.

- Carefully lift and transport the package.
-



NOTICE

Property damage due to improper transport!

Improper transport may cause transported items to fall down or topple over. This may cause significant and costly property damage.

- Proceed carefully during the unloading of the transport pieces during delivery as well as during the transport to its final destination and comply with the symbols and information displayed on the packaging.
 - Only remove packaging immediately prior to installation.
-

4.1 Transport inspection

1.  Check all system parts for completeness and transport damage immediately upon receipt.
2.  If there is apparent external transport damage, proceed as follows:
Note the scope of the damage on the transport documents or on the freight forwarder's delivery ticket.

INFORMATION

Report every complaint as soon as it is detected. Claims for damage compensation can only be asserted within the applicable period specified for the reporting of complaints, which was agreed with the private labeler.

4.2 Transport

The following special provisions must be considered during transport of the system with tank and propellant cartridge.

- ADR classification
 - Designation: UN 3363, dangerous goods in apparatus, is not subject to ADR regulations
 - Marking: -
- Classification according to IATA-DGR
 - Designation: Dangerous goods in apparatus, Class: 9 UN 3363
 - Marking: Hazard label Class 9
- Classification according to IMDG
 - Designation: UN 3363, Dangerous Goods in apparatus, Class: 9
 - Marking: Hazard label Class 9

The country-specific provisions are to be observed for export!

The safety data sheets for this system and for Novec™ 1230 by 3M™ are to be observed. These are included in the delivery of the system.

INFORMATION

Anyone who ships hazardous airfreight must be trained in accordance with IATA-DGR 1.3.

⚠ WARNING

Risk of injury from faulty release!

A faulty release of the system may cause severe injuries and property damage.

- Switch the blocking switch (Fig. 14/arrow) to "Agent disconnect [blocked]" (Fig. 14/ II) prior to the return transport of the complete system.

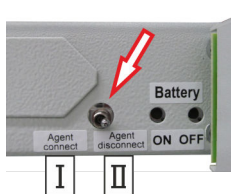


Fig. 14: Blocking switch

4.3 Packaging

Be sure to keep the packaging the system came in. The system can only be sent for maintenance or repair in the special original packaging it came in or in packaging equivalent to this.

Outer dimensions (width x depth x height)	675 x 875 x 210 mm
Weight	approx. 6.6 kg

Tab. 1: Data of the original packaging

5 Mounting and installation

INFORMATION

Mounting and installation of the system is to be performed solely by a trained Authorized Distributor.

5.1 Operating conditions and installation requirements

- Permissible ambient temperature range: +10 °C to +40 °C.
- Humidity: up to 96 %, relative, no condensation in the system.
- Low dust and low contamination in ambient air.
- Operation is not permissible in areas in which metallic or plastic decomposition gases or vapors can be extracted by the aspirating smoke detection system.
- Mounting the system in areas with shocks and vibrations is possible subject to certain conditions. The system has been tested according to standards DIN EN 54-20 and DIN EN 54-4 "Vibration".
- Operation only in closed cabinets. If cooling units are installed, make sure that no air exchange with the ambient air takes place (Fig. 15).
- Maximum permissible protection volumes: 2.8 m³ (Prerequisite: Protected enclosure must not have any visible openings).
- One free rack unit in the upper third.
- A minimum available installation depth of 660 mm.
- 100 - 240 Volt mains connection.

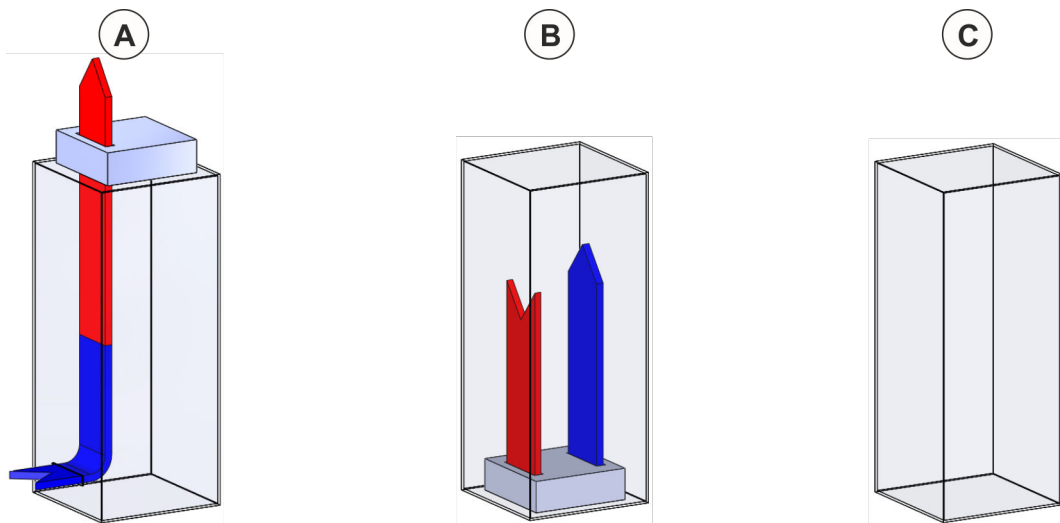


Fig. 15: Cooling air circuit switch cabinet

- A Installation of the system in the cabinet with open cooling air circuit **is only possible with restrictions** (the switch cabinet must be closed during the extinguishing)!
- B Installation of the system in the cabinet with closed cooling air circuit is possible.
- C Installation of the system in the closed cabinet without cooling air circuit and without visible openings is possible.

Installation of the system in differently equipped cabinets is possible only following consultation with the Authorized Distributor.

5.2 Installation and commissioning

⚠ WARNING

Danger of reignition if devices are not shut down!

In order to prevent reignition, it is imperative that there is an energy shutdown of the devices within the protected enclosure when the extinguishing system is released.

- Use the floating contacts (Fig. 16/1 to 3) for the device shutdown that is to be realized by the operator.
- If shutdown upon release is not guaranteed, it is necessary to make sure that a manual fire fighting or shutdown measure, which
 - prevents reignition, is completed within the hold time of the extinguishing concentration,
 - or
 - that an automatic shutdown of the devices is completed in order to prevent reignition.

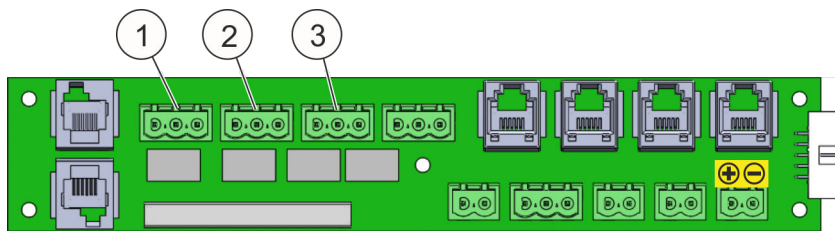


Fig. 16: Potential-free contacts

INFORMATION

Make sure, at an early stage, that the cabinet to be protected meets all of the requirements in regard to space needs, tightness and mounting options, so that the system can be installed in a proper functional manner.

INFORMATION

Be sure to keep the packaging the system came in. The system can only be sent for maintenance or repair in the special original packaging it came in or in packaging equivalent to this.

5.2.1 Installation instructions

WARNING

Danger due to faulty installation!

Non-horizontal installation of the system results in the extinguishing agent not being fully discharged and the failure message „*Extinguishing agent loss*” being displayed.

- Mount the system in a horizontal position (using a spirit level for alignment).

CAUTION

Risk of injury due to improper installation!

Improper installation can cause injuries and significant property damage.

- Refrain from all tasks which generate smoke and dust (smoking, soldering, cleaning work, etc.) during installation and commissioning of the system.

NOTICE

Property damage from alarm release!

The alarm can be released during installation/commissioning.

- Shut down downstream controllers (e.g. further extinguishing systems or transmissions) prior to installation/commissioning.

The system is to be placed in the upper third of the 19" cabinet to be protected. In this case, it is to be observed that the nozzle is placed in such a way that, with the exception of the cabinet wall, there are no further spray obstacles (e.g. wires) within a 200 mm radius of the nozzle. This must also be considered in regard to any subsequent changes in the cabinet.

5.2.2 Installation steps and function test

CAUTION

Risk of injury due to incorrect methods!

Deviating from the following installation steps can cause injuries and significant property damage.

- Adhere to the sequence of installation steps described here under all circumstances.

1. ➤ Remove the system from the packaging, place on a stable surface, and inspect for completeness and for damage.
2. ➤ Check the temperature indicator for raised temperature ↪ *Chapter 5.2.3 „Temperature indicator” on page 33.*

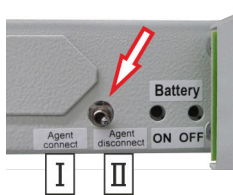


Fig. 17: Blocking switch

3. ➤ To block the system: Switch the blocking switch (Fig. 17/arrow) to "Agent disconnect [blocked]" (Fig. 17/ II).
4. ➤ Connect and activate the system with the *CAN bus connecting cable (Master/Slave)* and the power supply cable to a superordinate system.
5. ➤ Check whether the LED "Failure" lights up on the superordinate system and whether the message „*Failure extinguishing output*” is shown in the display.
6. ➤ Make the settings for using door contact switches ↪ *Chapter 5.3.3 „Door contact / blocking” on page 39.*
7. ➤ Make the necessary settings for the combination of "DET-AC III Master" and "DET-AC III Slave" ↪ *Chapter 5.3.4 „Combination of systems” on page 41.*
8. ➤ Deactivate the system at the superordinate system using the battery button.
9. ➤ Remove the *CAN bus connecting cable (Master/Slave)* and power supply cable.

10. ▶ Install guide rails laterally to support the system.
11. ▶ Fit the system with the guide rails via the guide rail noses to the rear section of the cabinet.
12. ▶ Insert the system horizontally on the guide rails until the stop at the front panel.
13. ▶ Align the system horizontally using a spirit level.
14. ▶ Fasten the system at the front panel in the 19" frame using the screws provided, including the black plastic washers. The holes for fastening are on the right and left outer side of the front panel.
15. ▶ Tighten the guide rail screws laterally.
16. ▶ To commission the system, connect the *CAN bus connecting cable (Master/ Slave)* and the power supply cable to a superordinate system and actuate the "Battery ON" button there.
17. ▶ Connect the mains supply at the superordinate system.
18. ▶ Connect door contact switch/switches (optional) ↪ *Chapter 5.3.3 „Door contact / blocking” on page 39.*
19. ▶ Connect alarm elements (optional).
20. ▶ Connect the Monitoring System CMC (optional) ↪ *Chapter 5.3.2 „Monitoring System CMC III / CMC-TC” on page 38.*
21. ▶ Assign potential-free contacts (optional) ↪ *Chapter 5.3.1 „Potential-free contacts” on page 37.*
22. ▶ Import the set parameters using the Maintenance Program ↪ *Chapter 9.3 „Project” on page 56.*
23. ▶ Check the failure and alarm functions ↪ *Chapter 5.2.5 „Checking the failure and alarm function” on page 34.*
24. ▶ **⚠ WARNING! Danger of a faulty release!**
 To activate the system: Switch the blocking switch (Fig. 17/arrow) to "Agent connect [not blocked]" (Fig. 17/ I).
 ⇒ The system is ready for operation and release.

Connecting additional devices ↪ *Chapter 5.3 „Installation and commissioning of additional electrical devices” on page 36.*

5.2.3 Temperature indicator



Check that the temperature indicator (65 °C) is in a proper state (Fig. 18). The temperature indicator is on the front cover.

Fig. 18: Temperature indicator light: Temperature is okay.



Fig. 19: Temperature indicator dark: **Notice**, temperature was exceeded!

If the temperature indicator is dark (Fig. 19), it is possible that electrical components have been damaged or that the tank has a leak due to the increased pressure caused by an increased temperature. Contact the Authorized Distributor if the temperature indicator is dark in color and have the system replaced.

5.2.4 Language setting for display and operation

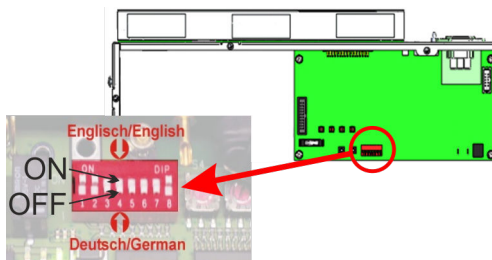


Fig. 20: Language setting

The system can communicate in "German" and "English". "German" is pre-set by the manufacturer but can be changed to "English" via a DIP switch (Fig. 20). Proceed as follows to make the changeover:

1. To block the system: Switch the blocking switch (Fig. 21/arrow) to "Agent disconnect [blocked]" (Fig. 21/ II).
2. Disconnect the system from the superordinate system: Remove the *CAN bus connecting cable (Master/Slave)* and power supply cable.
3. Peel off the transparent protective film.
4. Switch the DIP switch "4" from position "OFF" (German) to "ON" (English).
5. Stick the protective film on again.
6. Put the system in service again.

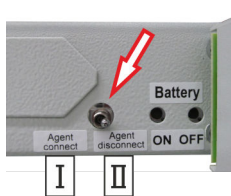


Fig. 21: Blocking switch

5.2.5 Checking the failure and alarm function

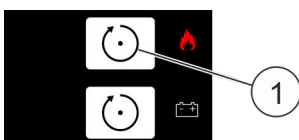


Fig. 22: [Reset] button

The checking of the failure and alarm function is performed at the superordinate system.

The system is ready for operation when the door is closed: The green LED lights up and „State OK” is shown in the display. If this is not the case, actuate the upper [Reset] button. The green LED then blinks twice and messages that are still pending are reset.

INFORMATION

Switch the system into the revision state for inspection. Transmissions are blocked by this.

5.2.5.1 Door contact switch

By opening a door to the protected cabinet which is equipped with a door contact switch, the message „Blocking by door cont.” is generated and the yellow LEDs lit up.

By removing the door contact plug on the rear side of the system, the door contact switch is deactivated. The message „Failure door contact” is also shown in the display.

Remount the door contact switch and activate the system using the upper [Reset] button.

The check must be performed for each of the door contact switches that are installed.

NOTICE**Faulty release due to removal of the blocking!**

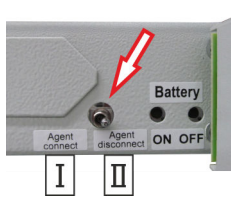
Premature removal of the blocking can result in a faulty release and thereby cause property damage.

- Do not stop blocking the system until there are no red LEDs lit up and there is no fire alarm shown in the display.
-

5.2.5.2 Manual call point** CAUTION****Danger of injury from faulty release!**

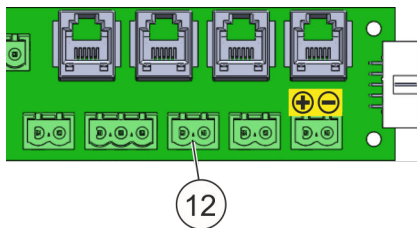
Checking the manual call point when the system is not blocked can result in a faulty release. A faulty release may cause injuries and significant property damage.

- Block the system prior to checking the manual call point. To this end, switch the blocking switch on the back of the system to the II "Agent disconnect [blocked]" position.
-



- I Agent connect [not blocked]
- II Agent disconnect [blocked]

Fig. 23: Blocking switch



Connect the manual call point as per [Chapter 5.3.5 „Manual call point”](#) on page 46 to connection "manual call point" (Fig. 24/12).

Fig. 24: Connection manual call point

Reset the failure message that comes up when connecting with the upper *[Reset]* button.

After the manual call point is released, the lower red LED blinks and „Manual release” and „Fire” are shown in the display.

Reset the manual call point and activate the system again with the upper *[Reset]* button.

NOTICE

Faulty release due to removal of the blocking!

Premature removal of the blocking can result in a faulty release and thereby cause property damage.

- Do not stop blocking the system until there are no red LEDs lit up and there is no fire alarm shown in the display.

5.3 Installation and commissioning of additional electrical devices

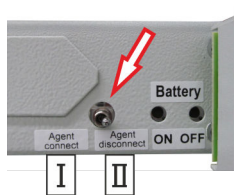
Following proper installation and commissioning, additional electrical devices can be connected to the system.

NOTICE

Damage due to alarm release!

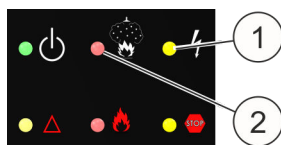
The alarm can be released during installation/start-up of an additional electrical device. This can cause significant property damage.

- Shut down external system controllers (e.g. activation of further extinguishing systems or transmissions via floating contacts) prior to connecting additional electrical devices.
- Block the system prior to the function test for additional electrical devices. To this end, switch the blocking switch to “Agent disconnect [blocked]”. The yellow “Failure” LED lights up continuously.
- Check that no alarm message (red LED “Extinguishing system triggered”) is displayed prior to removing the blocking. The extinguishing process is otherwise initiated immediately.



- I Agent connect [not blocked]
- II Agent disconnect [blocked]

Fig. 25: Blocking switch



- 1 LED "Failure"
- 2 LED "Extinguishing system triggered"

Fig. 26: LEDs

5.3.1 Potential-free contacts

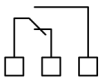
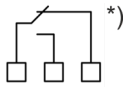
NOTICE

Malfunction due to interrupted relay contacts!

When using relay contacts for external controllers, the connections to the relay contacts can be interrupted when removing the system from the protected cabinet. As a result, there is a danger of unwanted switching states arising from, e.g. safety functions, which use closed circuits via relay break contacts in normal state.

- Do not interrupt the connections to the relay contacts when removing the system from the protected cabinet.

Relay 1 Pre-alarm 1 (NO)	A fire detector has released. The relay remains triggered until the upper <i>[Reset]</i> button is actuated.	
Relay 2 Fire alarm (NO)	The second fire detector has released or a manual call point was actuated. The relay remains triggered until the upper <i>[Reset]</i> button is actuated.	

Relay 3 Extinguish (NO)	The relay is triggered at the same time as the extinguishing process is released and remains triggered until the upper <i>[Reset]</i> button is actuated.	
Relay 4 Common failure (NC)	The relay is triggered continuously. The relay is deenergized in the event of a failure.	

*) failsafe

Relays "1" to "3" remain continuously triggered in this case. The maximum switch voltage of the changeover contacts is 30 V at a maximum switch current of 0.5 A and pure ohmic load. Inductive or capacitive loads require external protective circuits and are to be provided by the owner or by the Authorized Distributor, depending on the contractual basis.

5.3.2 Monitoring System CMC III / CMC-TC

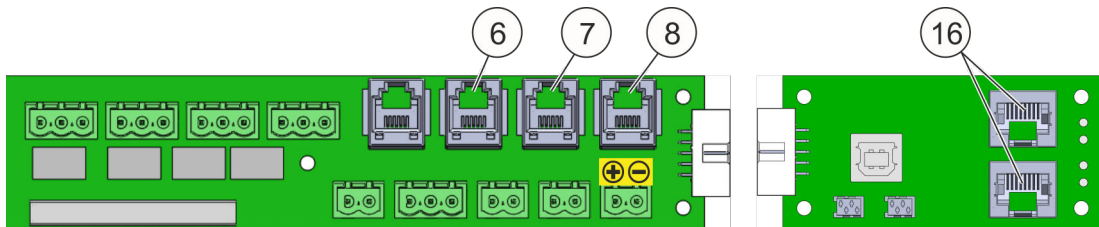


Fig. 27: CMC connections

- 6 Plug (RJ12) for connection to Rittal Monitoring System CMC-TC („*failure*”)
- 7 Plug (RJ12) for connection to Rittal Monitoring System CMC-TC („*fire alarm*”)
- 8 Plug (RJ12) for connection to Rittal Monitoring System CMC-TC („*pre-alarm*”)
- 16 CAN bus CMC III interface (RJ45)

The Computer Multi Control (CMC) is an alarm system for control, network and server cabinets. It monitors temperatures, humidity, inflow, smoke, energy and many other physical environmental parameters. The CMC III has a CAN-bus interface to which various CAN-bus sensors can be connected. The system can be addressed via the network using a standard browser as well as with the most common network protocols.

The system DET-AC III Slave also has two CAN-bus interfaces (Fig. 27/16) through which the system can be connected directly to the CMC III monitoring system
 ↪ [Chapter 3.3.3 „Interfaces to the Monitoring System CMC III / CMC-TC”](#)
 on page 24.

The CMC-TC is the predecessor to the CMC III and does **not** have a CAN-bus interface. The three states „*Failure*” (Fig. 27/6), „*Fire alarm*” (Fig. 27/7) and „*Pre-alarm*” (Fig. 27/8) can be queried via the RJ12 connectors (Fig. 27) using a CMC-TC I/O Unit.

5.3.3 Door contact / blocking

Door contact switches for monitoring the door position (open/closed) of the protected cabinet are connected to the connection "Door contact". If the door contact switch is actuated by opening the door, the extinguishing control of the whole system blocks. Up to 10 door contact switches can be connected per system. The lines between the door contact switches and the system are monitored for breaks and short circuits.

⚠ WARNING

Danger due to unwanted blocking!

The connection of door contact switches to connection "5" and at the same time to connection "13" causes the system to be blocked even when the doors are closed.

- Connect door contact switches only to connection "5" **or** to connection "13".

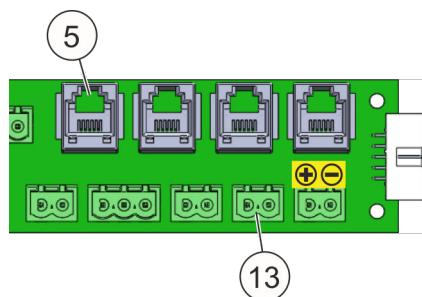


Fig. 28: Connections door contact switch

⚠ CAUTION

Unwanted release due to absent blocking!

If no door contact switches are used, the system is not blocked when the door is opened. The system can however be released in the event of detection.

- If there are no door contact switches, inform all persons who are working on the control cabinet of a possible release of the system if the door is open.

⚠ CAUTION

Danger to life if system is not operational!

Fire messages from the fire detectors and the manual call point which occur during the state „*Extinguishing system blocked*“ (= blocking of the extinguishing system), generate the state and the message „*Extinguishing system activated*“. In blocked state, this does not however lead to extinguishing.

- Start up the system again as quickly as possible (e.g. close the door(s) and keep them closed).

CAUTION

Danger of injury due to escaping extinguishing agent!

If, when the system is blocked (display „*Extinguishing system blocked*”), a fire alarm is released and blocking is removed when there is an alarm by, for example, closing the door, the extinguishing process is released one second after blocking is removed.

- Do not stop blocking the system until there are no red LEDs lit up and there is no fire alarm shown in the display.

5.3.3.1 Door contact switch "RJ12 plug"

The door contact input "5" (Fig. 28/5) is designed for switch type Rittal 7320.530 (Fig. 30/2 or 3). Connect door contact switches of variant "RJ12 plug" to the door contact input "5". Make the connection as per Fig. 29 and Fig. 30.

INFORMATION

The total length of the RJ12 connecting cables (AWG 26) which are used must not exceed 30 m.

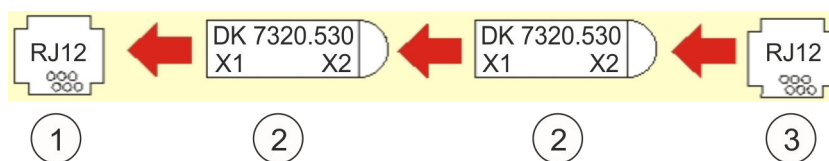


Fig. 29: Installation diagram for the door contact switch "RJ12 plug" (access sensor)

- 1 Door contact input "5" (Fig. 28/5)
- 2 Door contact switch "RJ12 plug"
 - X1 RJ12 socket (6-pole) for connecting to the system or for series connection with a further door contact switch
 - X2 RJ12 socket (6-pole) for series connection with further door contact switches (maximum 10 switches) or for the RJ12 plug "terminating resistor"
- 3 RJ12 plug "terminating resistor"

Consider when connecting the RJ12 plug "terminating resistor" (Fig. 30/1) that with older grey door contact switches (Fig. 30/3) a different terminating resistor is required to that needed for transparent door contact switches (Fig. 30/2):

- Grey door contact switch: terminating resistor = 22 kΩ
- Transparent door contact switch: terminating resistor = 1 kΩ

INFORMATION

The pre-mounted terminating resistor (Fig. 28/13) must be removed when using the switch "Rittal 7320.530".

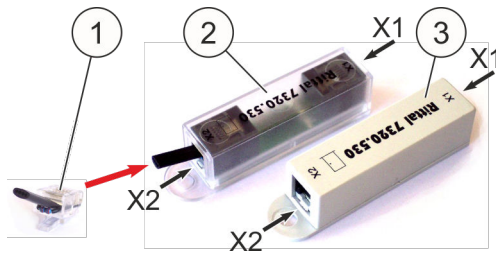
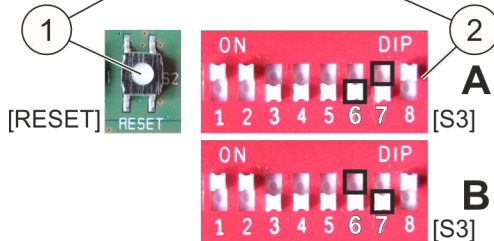
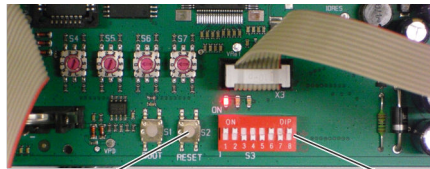


Fig. 30: Door contact switch and terminating resistor (RJ12)

On the control card CPU3 at DIP switch "S3" (Fig. 31/2), move slide switches "6" and "7" depending on the type of switch (grey/transparent):

- Grey door contact switch (Fig. 30/3):
Set slide switch "6" to "OFF" and slide switch "7" to "ON" (Fig. 31/A).
- Transparent door contact switch (Fig. 30/2):
Set slide switch "6" to "ON" and slide switch "7" to "OFF" (Fig. 31/B).



- A Setting for grey door contact switch
- B Setting for transparent door contact switch

Restart the system after setting the position of the slide switch using the *[Reset]* button (Fig. 31/1).

Fig. 31: *[Reset]* button and DIP switch "S3"

5.3.4 Combination of systems

When combining systems DET-AC III Master (Part No. 7338.121), DET-AC III Slave (Part No. 7338.321) and EFD III (Part No. 7338.221) to protect several switch cabinets, different settings must be made to the systems.

To this end, observe the operating instruction DET-AC III Master and EFD III as well.

5.3.4.1 Compatibility of systems from different series

Systems DET AC Plus Slave of the old series (Part No. 7338.320) can as a general rule be connected to active extinguishing systems DET-AC III Master of the new series (Part No. 7338.121). In the same way, systems DET-AC III Slave of the new series (Part No. 7338.321) can as a general rule be connected to active extinguishing systems DET AC Plus Master of the old series (Part No. 7338.120).

The systems are fully functional. However, not all messages are transmitted and certain functions cannot be performed (e.g. Maintenance Program, external tank, ...).

5.3.4.2 Networking systems

Up to five systems (active extinguishing system DET-AC III Master or EFD III with DET-AC III Slave) can be networked with each other via a bus system to protect several switch cabinets. One data line and one supply line respectively must be laid for networking ↪ *Chapter 5.3.4.4 „Connecting the energy supply and data line” on page 44.*

Example combinations (max. structure)

	Z2	Z3	Z4	Z5
<u>Example 1:</u>				
<i>[DET-AC III Master]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>
Master	Slave	Slave	Slave	Slave
<u>Example 2:</u>				
<i>[EFD III]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>	<i>[DET-AC III Slave]</i>
Master	Slave	Slave	Slave	Slave
<u>Example 3:</u>				
<i>[DET-AC III Master]</i>	<i>[DET-AC III Master]</i>	<i>[DET-AC III Master]</i>	<i>[DET-AC III Master]</i>	<i>[DET-AC III Master]</i>
Master	Master	Master	Master	Master

Should a failure occur in the systems that are connected, the system is denoted by "Z2", "Z3", "Z4" or "Z5" in the display in the Master.

5.3.4.3 Configuring systems

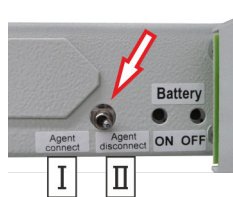


Fig. 32: Blocking switch

1. ➤ To block the system: Switch the blocking switch (Fig. 32/arrow) to "Agent disconnect [blocked]" (Fig. 32/ II).
2. ➤ Remove the transparent protective film in the rear section of the cover.

3. **⚠ WARNING! Danger due to malfunction!**

- Do **not** change S4!
- Do **not** change S5!

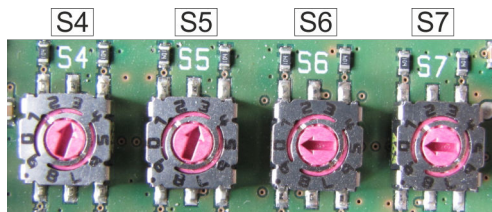


Fig. 33: Configuration

4. Configure the system with addresses (Fig. 33).

- Set S6 to the sum of the systems that are networked (Fig. 34).
- Set S7 to the identification that the system has within the networking (Fig. 34). S7 must be set to "0" for non-networked systems.

5. Close the transparent protective film in the rear section of the cover.

Combination	Master	1. DET-AC III Slave	2. DET-AC III Slave	3. DET-AC III Slave	4. DET-AC III Slave
DET-AC III Master or EFD III Not networked	 0 0	X	X	X	X
DET-AC III Master or EFD III combined with 1 x DET-AC III Slave	 2 1	 2 2	X	X	X
DET-AC III Master or EFD III combined with 2 x DET-AC III Slave	 3 1	 3 2	 3 3	X	X
DET-AC III Master or EFD III combined with 3 x DET-AC III Slave	 4 1	 4 2	 4 3	 4 4	X
DET-AC III Master or EFD III combined with 4 x DET-AC III Slave	 5 1	 5 2	 5 3	 5 4	 5 5

Fig. 34: Addressing S6 and S7

5.3.4.4 Connecting the energy supply and data line

1. ➔ Connect the mains supply (Fig. 35/2) of 100 – 240 V/AC to the Master (Fig. 35/1).
2. ➔ Establish the power supply (Fig. 35/5) between Master and first Slave (Fig. 35/7). See also [Chapter 3.3.6 „Power supply” on page 25](#).
3. ➔ Establish the power supply (Fig. 35/6) between first Slave and next Slave (Fig. 35/8).
4. ➔ Ensure that there is no fire message pending at the Master.
5. ➔ Connect the *CAN bus connecting cable (Master/Slave)* (Fig. 35/3) between Master and first Slave.

6. → Connect the *CAN bus connecting cable (Master/Slave)* (Fig. 35/4) between first Slave and next Slave.

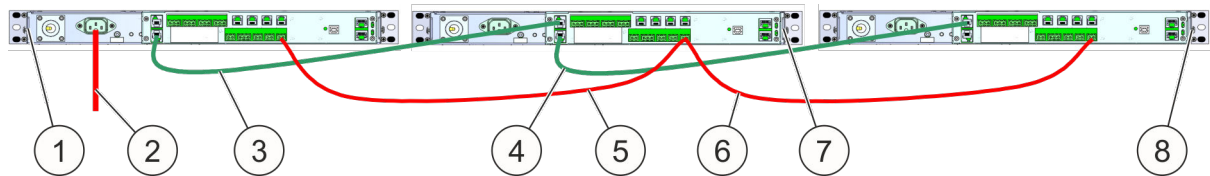


Fig. 35: Energy supply and data line

5.3.4.5 Checking networking

After complete construction of the network, a failure message must be generated on each of the systems that are networked in order to check data transmission. This is displayed at the Master if functioning correctly.

For networked systems, a failure message can, for example, be generated by actuating the blocking switch.



Faulty release due to activated system!

Checking networking using the blocking switch can result in a faulty release and thereby cause injuries and property damage.

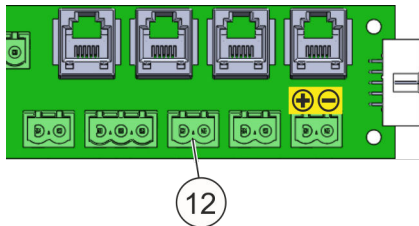
- Only use the blocking switch to check networking if there are no red LEDs lit up and there is no fire alarm shown in the display.

5.3.4.6 Reading out the state of the respective systems

The display for the current state of the system is at the Master (Active Extinguishing System DET-AC III Master or EFD III). The messages of the networked devices with the identification „Z2” to „Z5” are shown on the Master display.

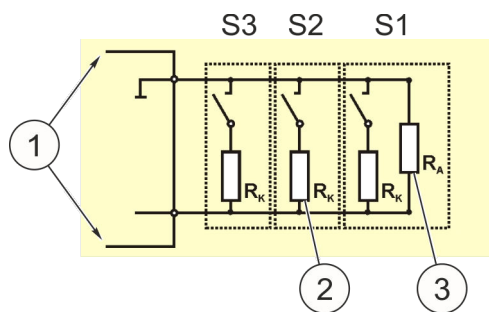
Identification	System to which the message relates
	Active Extinguishing System DET-AC III Master or EFD III (always Master!)
Z2	DET-AC III Slave Extinguishing System 1
Z3	DET-AC III Slave Extinguishing System 2
Z4	DET-AC III Slave Extinguishing System 3
Z5	DET-AC III Slave Extinguishing System 4

5.3.5 Manual call point



Manual call points are connected to the connecting terminal "Manual call point" (Fig. 36/12). If a manual call point is actuated, the extinguishing process is released.

Fig. 36: Connecting terminal "Manual call point"



- Normal state = switch open
 Manual call point actuated = switch closed
- 1 Lines to the system (connection "12")
 - 2 Resistance $R_K = 470 \Omega$, 1/10 Watt
 - 3 Resistance $R_A = 1,8 \text{ k}\Omega$, 1/10 Watt (delivered as such)

Fig. 37: Manual call points parallel connected

Several manual call points can be parallel connected (Fig. 37).

Extinguishing can be released by actuating a manual call point (☞ *Chapter 11 „Spare parts, accessories, consumables and tools” on page 74*). Release occurs directly after the actuation and independently of the state of the automated fire detectors.

Release of extinguishing by actuating a manual call point is suppressed if blocking is in place.

The alarm message of the manual release must be reset manually using the upper *[Reset]* button of the superordinate system.

6 Alarms and failures



Fig. 38: DET-AC III Slave

The system's operating state is monitored and displayed by the superordinate system. If there is a failure or an alarm present, this is shown in the display of the superordinate system.

Alarm messages

The superordinate system relays the signal for extinguishing to the DET-AC III Slave. The signals can be taken off of the "connection technology" card and processed further.

Failure messages

The system monitors the most important functions. Failures are shown via the superordinate system and can be transmitted via the potential-free contacts to an external display or controller.

NOTICE

Malfunction due to failure!

Correct functioning of the system is not ensured if a failure exists. Under certain circumstances, no fire can be detected or extinguished if a failure message occurs.

- Rectify the cause of the failure message immediately.

NOTICE

Faulty release due to function test!

A function test can result in a faulty release and thereby cause property damage.

- Block the system prior to a function test. To this end, switch the blocking switch (Fig. 39/4) to "Agent disconnect [blocked]" (Fig. 39/ II).
- Checking the blocked state:
 - The upper yellow LED (Fig. 39/2) lights up.
The lower yellow LED (Fig. 39/3) also lights up if a door fitted with a door contact switch is open.
 - „Tank activation failure” is shown in the display.
- Prior to removing the blocking, make sure that the upper red LED (Fig. 39/1) is **not** illuminated as the extinguishing process will otherwise be initiated immediately.

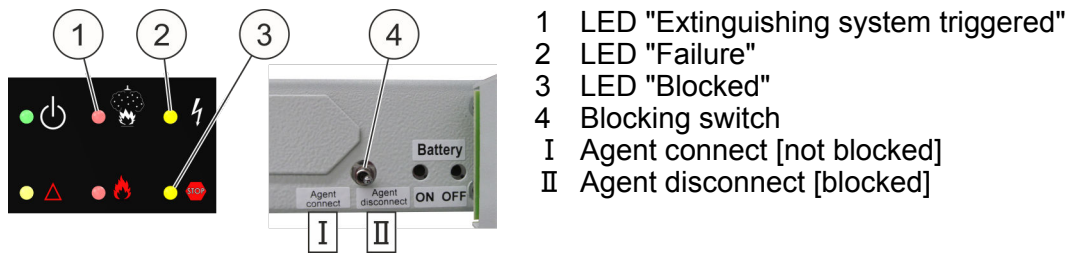


Fig. 39: Blocking

7 Display and control elements

Operation of the system is via the superordinate system DET-AC III Master or EFD III or via the Maintenance Program ↪ *Chapter 9 „Maintenance program” on page 54*. Refer to the operating instruction for DET-AC III Master or EFD III for operation via a superordinate system.

Operating hours counter

The system monitors the operating time since the last maintenance work was performed. If this exceeds the permissible maintenance interval, a failure message is generated (LED display "Common failure" and triggering relay "Common failure").

There are the following options for resetting this message:

- Resetting via the *[Reset]* button.
An Authorized Distributor Reset must take place to reset this message. To this end, the transparent protective film at the housing of the system must be opened. On the control card CPU3, the *[RESET]* button (Fig. 40/1) is to be actuated for longer than three seconds. Afterwards, the failure message and the operating hours counter of the system are reset.
- Resetting via the Maintenance Program ↪ *Chapter 9.7 „Operation” on page 59*: Press the "Maintenance" button.

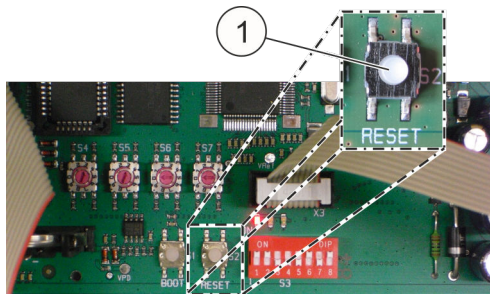


Fig. 40: *[Reset]* button

NOTICE

Damage due to incorrectly recorded operating hours!

The operating hours counter for the maintenance interval is based on the real time clock that is installed. Adjusting this clock can, under certain circumstances, affect correct recording of the operating hours.

- Do not manipulate the time.

8 Messages display

Messages are shown on the display of the superordinate system for the following states.

INFORMATION

The DET-AC III Slave doesn't have its own display.

Message	Cause	Necessary measure
State OK	<ul style="list-style-type: none"> System in normal range. 	None.
Extinguishing triggered	<ul style="list-style-type: none"> Extinguishing was activated due to a fire. 	Inform service, installation of a new tank system.
Fire	<ul style="list-style-type: none"> Fire is detected. 	None.
Manual release	<ul style="list-style-type: none"> Manual release. 	Inform service, installation of a new tank system.
Failure manual release	<ul style="list-style-type: none"> Wire break or short circuit on the manual call point line. Short circuit or wire break at the manual call point e.g. wire not connected. Terminating resistor is missing, if no manual call point is intended. 	Check the manual call point connections Where applicable connect wire or insert terminating plug. Terminating resistor manual call point not present (1.8 kΩ), see description manual call point ↗ <i>Chapter 5.3.5 „Manual call point” on page 46.</i>
Fire alarm detector 1	<ul style="list-style-type: none"> Fire is detected. 	None.
Fire alarm detector 2	<ul style="list-style-type: none"> Fire is detected. 	None.
Blocking by door cont.	<ul style="list-style-type: none"> Extinguishing system is blocked by the door being opened. 	Close the door, check the door contact switch. Check whether there is still a terminating resistor in the RJ12 plug or connected to the door contact clamp.
Failure door contact	<ul style="list-style-type: none"> Wire break or short circuit on the door contact line. Short circuit or wire break at the door contact e.g. wire not connected. Terminating plug is missing, if no door contact is intended. Output and input of the door contact are inverted. 	Check the door contact connections. Where applicable connect wire or insert terminating plug. Wire the door contact properly ↗ <i>Chapter 5.3.3 „Door contact / blocking” on page 39.</i>
Failure power supply unit (PSU)	<ul style="list-style-type: none"> Power supply unit no longer emits any voltage if, for example, a mains lead is not connected. 	Restore the power supply.

Message	Cause	Necessary measure
Failure battery	<ul style="list-style-type: none"> • Battery deeply discharged. • Battery is defective. • Battery not connected. 	Check whether there was a mains failure. If yes, then charge the batteries for 24 hours in the system. The failure message must then be able to be reset. If this is not possible, the batteries must be changed.
Failure battery int. resistance	<ul style="list-style-type: none"> • Battery is defective. 	Change batteries.
Failure (too high) air flow	<ul style="list-style-type: none"> • Suction pipe has loosened. 	Fasten the suction pipe.
	<ul style="list-style-type: none"> • Suction pipe is broken. 	Replace the suction pipe.
	<ul style="list-style-type: none"> • Too many suction holes. 	Seal some suction holes.
	<ul style="list-style-type: none"> • Blind plug is missing. 	Mount the blind plug.
Failure (too low) air flow	<ul style="list-style-type: none"> • Suction pipe heavily contaminated. • The filter in the air flow monitoring is contaminated. • There are not enough suction holes, there are no suction holes or the suction holes are too small in the pipe system. 	Clean the suction pipe. If the failure continues to exist, replace the air filter.
Failure detector 1	<ul style="list-style-type: none"> • Detector head 1 defective. • Detector head 1 is missing. 	Inform service.
Failure detector 2	<ul style="list-style-type: none"> • Detector head 2 defective. • Detector head 2 is missing. 	Inform service.
Failure Communication	<ul style="list-style-type: none"> • Power supply (24 V) to the slave is interrupted. • Electrical defect. • CAN bus connecting cable (Master/Slave) to the Slaves not connected. • Addressing at the Master or Slaves is wrong. 	Check / insert power supply (24 V). Inform service.
Failure tank triggering	<ul style="list-style-type: none"> • Blocking switch actuated (position "Agent disconnect [blocked]"). 	Switch blocking switch to "Agent connect [not blocked]" position.
	<ul style="list-style-type: none"> • Wire break on the trigger line to the propellant cartridge. 	Inform service.
Extinguishing agent loss	<ul style="list-style-type: none"> • Filling level too low (internal/external). • System not installed horizontally. • Loss of extinguishing agent in the tank (internal/external). 	Align the system horizontally and check whether the failure message goes away. Inform service.

Message	Cause	Necessary measure
Failure extinguishing agent	<ul style="list-style-type: none"> Wire break or short circuit on the line "external tank". 	Inform service.
Perform maintenance	<ul style="list-style-type: none"> Operating time has reached the maintenance interval. 	Inform service. Call for maintenance.
Battery change required	<ul style="list-style-type: none"> Operating time has reached maximum durability. 	Inform service. Call for maintenance.
System failure	<ul style="list-style-type: none"> Serious internal problem. 	Reboot the system. Inform service.
Date / time	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Event memory	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Air flow calibration	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Lamp test	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Version information	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Firmware version	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Control panel version	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
BIOS version	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Checksums	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Air flow indication	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Automatic air flow calibration	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Manual air flow calibration	<ul style="list-style-type: none"> Actuation of the buttons "Up" / "Down". 	None.
Pre-alarm	<ul style="list-style-type: none"> Fire detector 1 has detected. 	Acknowledge.
Triggering extinguish. system	<ul style="list-style-type: none"> Fire detected. Manual release. 	Inform service.
Tank not empty	<ul style="list-style-type: none"> Is reported after an simulated extinguishing has occurred (in blocked state) if the tank was not emptied in the prescribed time. 	Acknowledge.

Message	Cause	Necessary measure
Tank empty	<ul style="list-style-type: none">Is reported after extinguishing has occurred as the tank is then empty.	Inform service. Call for maintenance.
Mains failure	<ul style="list-style-type: none">Mains power supply unavailable.	Rectify any possible failures in the mains power supply.
Outage battery charging	<ul style="list-style-type: none">Outage in the battery charging circuit.	Inform service.
Failure ignition cap.	<ul style="list-style-type: none">The capacity of the ignition capacitor is no longer sufficient or a release has just occurred.	Inform service.
Failure external supp.	<ul style="list-style-type: none">Short circuit on the 24 V external line.	Rectify the short circuit or overload. Inform service.
Battery not full	<ul style="list-style-type: none">Battery not fully charged.	None.

9 Maintenance program

9.1 Installing the maintenance program

Requirements of the operating system: Windows XP or later and Microsoft.NET Framework 4.0 or later.

In most cases, the maintenance program can only be installed with Administrator's rights. Proceed as follows to do this:

1. ➤ Copy the zip file into a directory and unpack.
2. ➤ Create a shortcut on the desktop.
3. ➤ Open the window to change the shortcut: "Properties" >> "Shortcut" >> "Target".
4. ➤ Change the extension of the shortcut to:
`\Wartungsprogramm.exe hamburg.`

***i** Adding "hamburg" enables additional functions for the Authorized Distributor.*

INFORMATION

*In order to display the maintenance program in English, change the extension to:
`\Wartungsprogramm.exe en hamburg.`*

9.2 Homepage

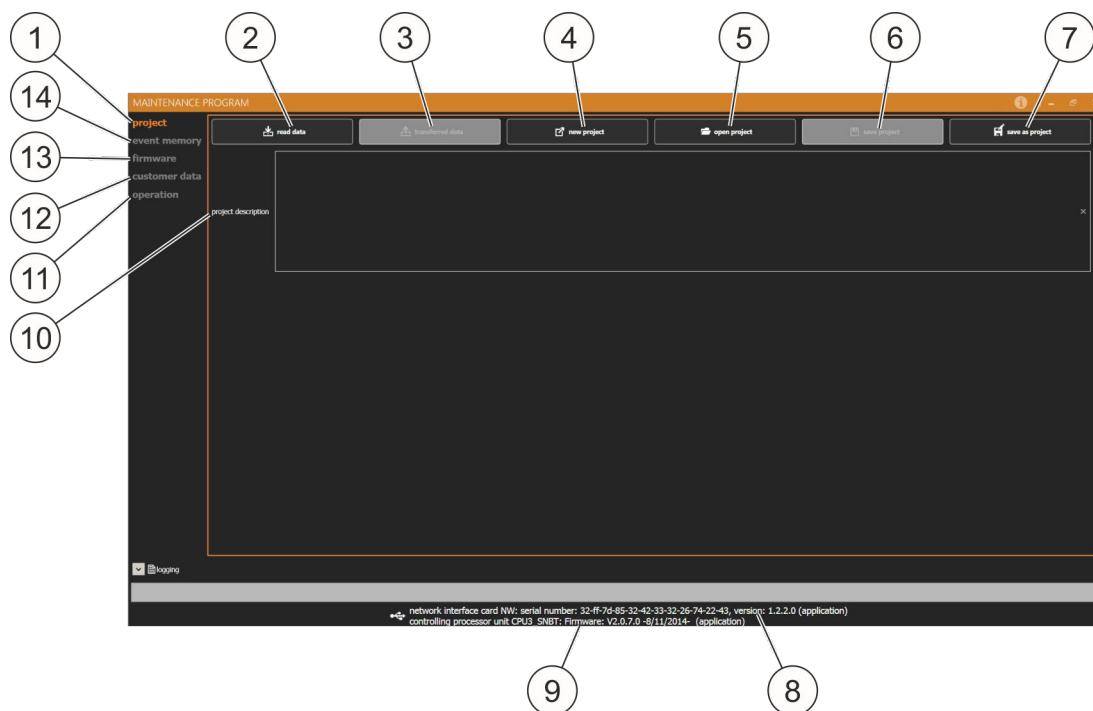


Fig. 41: Maintenance program homepage

The following options are shown after starting the maintenance program:

- Project (Fig. 41/1) ↪ *Chapter 9.3 „Project” on page 56*
 - Import data (Fig. 41/2) (gray background, if no system is connected)
 - Transfer data (Fig. 41/3) (gray background, if no data has been imported yet)
 - New project (Fig. 41/4)
 - Open project (Fig. 41/5)
 - Save project (Fig. 41/6) (gray background, if no project was opened previously)
 - Save project as (Fig. 41/7)
- Event memory (Fig. 41/14) ↪ *Chapter 9.4 „Event memory” on page 56*
- Firmware (Fig. 41/13) ↪ *Chapter 9.5 „Firmware” on page 57*
- Customer data (Fig. 41/12) ↪ *Chapter 9.6 „Customer data” on page 57*
- Operation (Fig. 41/11) ↪ *Chapter 9.7 „Operation” on page 59*

The following information is displayed:

- Network Interface Card serial number, Network Interface Card version number (Fig. 41/8)
- Firmware version (Fig. 41/9)

The following input option exists:

- The project can be described in the project description (Fig. 41/10).
This description is saved with the project via "Save project as" or via "Save project" with the data on the **PC**. The project description is not transferred to the system (DET-AC III Slave) and it is not saved in the system. The project description is not available after the data has been exported from a system.

9.3 Project

Importing data

All data from the system connected is imported into the maintenance program.

Transferring data

All data, which is present in the maintenance program, is transferred to the system that is connected. The transfer can only occur if existing data was imported in advance, customer data was input, or a project was loaded.

New project

The "New project" function can be used to completely revise the data in a project. All set customer data will be deleted!

NOTICE

Property damage due to malfunction!

Functionally relevant components can be deactivated as a result of a faulty entry.

- Allow only qualified personnel to operate the maintenance program.
-

Opening a project

A saved project can be opened and transferred to the system.

Saving a project

The project is saved if the path is known.

Saving a project as

A project is saved under a previously input path and name.

9.4 Event memory

Pending and past events can be displayed and saved using the event memory.

- **AMEM:** events currently pending.
- **EMEM:** all events that have occurred up to the point in question.
- **DMEM:** Firmware diagnostics records.

9.5 Firmware

- The most up-to-date version can be transferred using the „*Open + transfer firmware*” button.
- Designation SW (software card CPU)
SW_OnU_SNBT_GerEng_CPU2_0_7_0_2014_08_11.hex *)
 This is transferred to the CPU if any changes are made.
- Designation SW (software CPU, software network NW and software control panel BT)
SW_OnU_SNBT_GerEng_CPU2_0_7_0_2014_08_11_BT3_02_00_01_00_2014_05_22_NWoKDF1_2_2_0_2014_07_07.hex *)
 This is transferred to the active extinguishing system ("DET-AC III Master") if changes are made.
- Designation SW (software CPU and software network NW)
SW_OnU_SNBT_GerEng_CPU2_0_7_0_2014_08_11_NWoKDF1_2_2_0_2014_07_07.hex *)
 This is transferred to the extinguishing system ("DET-AC III Slave") if changes are made.

*) Sample designation

9.6 Customer data

Customer data is divided into four main categories:

- General ↪ *Chapter 9.6.1 „General” on page 57.*
- Components ↪ *Chapter 9.6.2 „Components” on page 58.*
- Timeouts ↪ *Chapter 9.6.3 „Timeouts” on page 58.*
- Threshold values ↪ *Chapter 9.6.4 „Threshold values” on page 58.*

9.6.1 General

- Description: Any text, which is used to describe the system/project, can be entered in the description. During data transfer, this description is transferred to the system (DET-AC III Slave) Any text, which is used to describe the system/project, can be entered in the description. During data transfer, this description is transferred to the system.
- Date Prog.: Date when customer data was last transferred.
- System password: Defines the six-digit password (numbers 0-9) for maintenance mode.
- Last maintenance: Displays the time of the last maintenance. This value is set to the current system time by actuating the maintenance button in the "Operation" directory.
- Last battery change: Displays the time of the last battery change. This value is set to the current system time by actuating the battery change button in the "Operation" directory.

9.6.2 Components

For components, the tank and connection of an external alarm device (AE) can be selected. The systems are delivered with the following setting:

System	Tank	Alarm device (AE)
DET-AC III Master	Internal	Not present
DET-AC III Slave	Internal	Not present
EFD III	Not present	Not present

9.6.3 Timeouts

- Scroll [20 s]*: Switch back from the display of older messages to the basic state of the message display.
- Menu [30 s]*: Return to basic state from the control menu.
- Display [40 s]*: Return from a function display to the menu.
- Program [1800 s]*: Return from a programming function to the menu.
- Message [15 s]*: Duration of the result display of a menu function.
- Code [15 s]*: Timeout for menu functions that do not have their own timeout.
- Edit [60 s]*: Exit input mode.
- Test [1800 s]*: Exit the display mode of a diagnostics function (air flow display, air flow calibration, calibrate alarm device (AE), battery status display, temperature display).
- Battery failure is only displayed after 60 seconds*.
- Mains failure is displayed after 60 seconds*.
- Maintenance is displayed after not more than 730 days*.
- Battery change is displayed after 730 days*.
- Air flow monitoring filter time: the failure is only displayed after 120 seconds*.
- Extinguishing delay: extinguishing is delayed by 0 seconds*.

* Factory setting

9.6.4 Threshold values

- Air flow monitoring lower threshold: the lower value of the air flow calibration is displayed.
- Air flow monitoring upper threshold: the upper value of the air flow calibration is displayed.
- AE (alarm device) monitoring lower threshold: the lower value of the alarm device is displayed (wire break/short circuit monitoring).
- AE (alarm device) monitoring upper threshold: the upper value of the alarm device is displayed (wire break/short circuit monitoring).
- Extinguishing agent monitoring filter time: Setting for the delay in minutes until display of the extinguishing agent leak.

- Temperature MIN (°C): Setting for the lowest operating temperature (restricted by the manufacturer to 10 °C).
- Temperature MAX (°C): Setting for the highest operating temperature (restricted by the manufacturer to 40 °C).
- External valve (lower threshold): the lower value of the external valve is displayed (wire break/short circuit monitoring).
- External valve (upper threshold): the upper value of the external valve is displayed (wire break/short circuit monitoring).

9.7 Operation

Lamp test

Puts the system into the lamp test. A second actuation ends the lamp test.

Revision

Puts the system in revision. A second actuation results in the revision mode being exited.

The following triggerings are suppressed in revision operation:

- Connecting terminal for relay output „*Pre-alarm*”
- Connecting terminal for relay output „*Fire alarm*”
- Connecting terminal for relay output „*Extinguishing*”
- Output „*External alarm device*”
- Triggering the internal tank.

Battery change

Adopts the system's current time state as the time of the last battery change. No safety queries occur in this process in contrast to when this function is activated on the control panel.

Maintenance

Adopts the system's current time state as the time of the last maintenance.

„*Reset*”: Resets the system.

„*Reset PS*”: Resets battery failures.

USB-CPU configuration

By actuating this button, the "Network Interface NW" card (Fig. 5), which is currently connected to the PC, is reprogrammed in order to remedy an increase in the number of virtual COM ports. In addition, the setup program is automatically supplied with appropriate parameters so that the actual programming procedure does not require any further operations. The configuration program is automatically installed during the program installation.

INFORMATION

This configuration only has to be performed for component assemblies with a production date prior to July 8, 2014 ("Network Interface NW" card with component assembly numbers prior to 0214 and from 0214-0001 up to and including 0214-0349).

If the system is no longer to be recognized following USB configuration, then configuration has to be performed again. Configuration is then only possible if the maintenance program displays "No device connected".

Time

- Read out time: Reads the time out of the CPU of the system and displays it in the „*time*“ and „*date*“ fields.
- Set date/time: Writes the values from the „*time and date field*“ into the CPU of the system.
- System time: Sets the „*time*“ and „*date*“ fields to the PC system time.
- Time/date field: Defines the time that is to be written into the system by means of „*Set date/time*“. Manipulations of these fields do not become effective until the „*Set date/time*“ button is clicked.

10 Repairs

WARNING

Danger due to a lack of fire safety!

If the system has been taken out of service there is no fire safety. Fires breaking out can cause severe injuries and significant property damage.

- Keep functioning and suitable reserve extinguishing equipment on hand (e.g. suitable fire extinguishers).
- Do not shut down the system longer than necessary.
- Place the system in service immediately after conclusion of the inspection and maintenance tasks.

The owner performs regular visual inspections and functional checks described for the owner.

Maintenance of and repairs to the system are performed by a trained Authorized Distributor.

An authorized specialist company for the maintenance and troubleshooting tasks is a company whose employees have been trained by the manufacturer of the system. As a general rule, this is an employee of the installation company.

The manufacturer accepts no liability for improper handling and insufficient or non-performed regular checks and maintenance.

10.1 Regular checks by the owner

Daily checks (Owner)

- The system must be in a failure-free state. This is to be checked using the displays (display and LEDs) of the superordinate system.
If the system is connected to a CMC III, the control can also be done via the website or the superordinate control system.
- Failures present are to be recorded and rectification is to be initiated.

Monthly checks (Owner)

- The discharge nozzle must not exhibit any external damage and must be free from contamination and spray obstacles.

10.2 Inspection, maintenance and repairs by the Authorized Distributor

WARNING

Risk of injury due to improperly executed repair tasks!

Improper repairs can cause severe injuries and significant property damage.










- Repair tasks must only be performed by specifically qualified personnel.
- As a general rule, tanks which have not released, i.e. those that are pressurized, must not be opened or stripped down.

Precise knowledge of the system(s) in question is required for the performance of service tasks. This includes:

- DET-AC III Master (Part No. 7338.121)
- DET-AC III Slave (Part No. 7338.321)
- EFD III (Part No. 7338.221)

The respective system type, operating instruction and the Firmware installed when delivered can be ascertained from the information on the type plate (part number, serial number, order number).

Before the start of the inspection/maintenance, the current maintenance information is to be requested from the manufacturer!

Reference to chapter „Task“ page reference	Annual inspect./ maintenance	Maintenance every 2 years	Maintenance every 10 years
 Chapter 10.2.1 „Checking for proper installation” on page 65	X		
 Chapter 10.2.2 „Checking for external damage” on page 65	X		
 Chapter 10.2.3 „Recording the WA No. / Part No. / F. No.” on page 65	X		
 Chapter 10.2.4 „Recording the date of the current maintenance / inspection” on page 65	X		
 Chapter 10.2.5 „Recording the current version” on page 65	X		
 Chapter 10.2.6 „Checking current fault messages, history since last maintenance” on page 66	X		
 Chapter 10.2.7 „Checking the discharge nozzle for contamination” on page 66	X		
 Chapter 10.2.8 „Checking the temperature indicator” on page 66	X		
 Chapter 10.2.9 „Checking the setting of date and time” on page 66	X		

Reference to chapter „Task“ page reference	Annual inspect./ maintenance	Maintenance every 2 years	Maintenance every 10 years
☞ Chapter 10.2.10 „Checking the function of the door contact switch” on page 66	X		
☞ Chapter 10.2.11 „Checking the blocking switch” on page 66	X		
☞ Chapter 10.2.12 „Checking for proper connection of the transmission” on page 66	X		
☞ Chapter 10.2.13 „Checking whether shutdown occurs” on page 67	X		
☞ Chapter 10.2.14 „Reading out and transferring data” on page 67	X		
☞ Chapter 10.2.15 „Checking the electrical connections” on page 67	X		
☞ Chapter 10.2.16 „Changing the battery ”control card CPU3”” on page 67			X
☞ Chapter 10.2.17 „Checking the DIP switch on the control card CPU3” on page 67	X		
☞ Chapter 10.2.18 „Checking the networking of the systems” on page 68	X		
☞ Chapter 10.2.19 „Checking for contamination in the housing” on page 68	X		
☞ Chapter 10.2.20 „Checking loss monitoring” on page 68	X		
☞ Chapter 10.2.21 „Checking the total weight” on page 68	X		
☞ Chapter 10.2.22 „Changing the tank” on page 68			X

For annual inspection/maintenance, the system is taken out of the switch cabinet in order to perform bigger maintenance tasks. It is necessary to consult the owner in this instance.

In order to avoid failures at a superordinate position during servicing tasks, revision can be actuated.

INFORMATION

Many sensitive, networked components/servers are mounted in switch cabinets. Significant loss can be incurred by the owner in the event of damage or careless actions. Act with care so that no existing plug connections are removed or damaged.

It is preferable for maintenance to take place on a fixed workspace which was designed for this purpose and has a 100 to 240 V connection.

⚠ WARNING

Danger of injury from faulty release!

A faulty release of the system may cause severe injuries and property damage.

- Block all networked systems using the blocking switch (Fig. 42/arrow) (switch the blocking switch to "Agent disconnect [blocked]" (Fig. 42/ II)) prior to performing maintenance work.

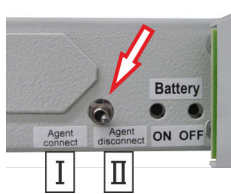


Fig. 42: Blocking switch

⚠ WARNING

High voltage!

An imminent risk of death or severe physical injury due to electric shock.

- All tasks at the open system may only be performed by electricians with appropriate training.

NOTICE

Property damage from alarm release!

The alarm can/should be released during maintenance tasks.

- Shut down/bypass all downstream controllers (e.g. transmission or shutdown) prior to performing any maintenance tasks.

Annual Inspection/Maintenance (Authorized Distributor)

Visual inspection, full maintenance (e.g. check and clean the discharge nozzle where applicable) and function test.

The event memory must be checked for failures ↪ *Chapter 9 „Maintenance program” on page 54.*

In the course of maintenance, the system is checked fully and, where applicable, put back into target state. Non-compliance with these intervals can cause failures and false alarms and consequently to faulty extinguishing.

During maintenance, the total weight of the system must be reported.

Maintenance every two years (Authorized Distributor)

The Authorized Distributor must perform maintenance work to the system at least every two years.

A total service life of 10 years is set for the integrated detectors employed in the system if used in dry areas free from combustible dust and corrosive atmosphere. Regular inspections, maintenance, cleaning and calibration where applicable are prerequisites for this.

In isolated cases, shorter periods for changes may be required depending on ambient conditions or fire detector type.

The maintenance tasks are documented in the checklists that are intended to serve this purpose.

10.2.1 Checking for proper installation

Check whether the system is installed in the upper third.

Check and report horizontal installation using a spirit level.

10.2.2 Checking for external damage

Check all connections and the system itself for external damage.

10.2.3 Recording the WA No. / Part No. / F. No.

Read the factory order number (WA No.), the part number (Part No.) and the production number (F. No.) of the system on the labels and report them in the service report. The labels are on the housing cover and on the rear of the system.

10.2.4 Recording the date of the current maintenance / inspection

Fill out the report for the date of the current and last maintenance by hand or read it out via the Maintenance Program ↪ *Chapter 9.6 „Customer data” on page 57.*

10.2.5 Recording the current version

Refer to the Maintenance Program for the current version states ↪ *Chapter 9 „Maintenance program” on page 54.*

- Firmware version
- Control panel version
- BIOS version

Record the different versions in the service report and compare with the old data. A deviation is to be noted with an explanation.

10.2.6 Checking current fault messages, history since last maintenance

Check the history since last maintenance. Correct the current fault messages. Record the fault via the Maintenance Program ↪ *Chapter 9.4 „Event memory” on page 56*. In the event of fault messages, discuss them with the owner and report the causes/reasons.

10.2.7 Checking the discharge nozzle for contamination

The nozzle holes must be visually checked for contamination and inclusions. In the event of contamination, the holes must be cleaned.

10.2.8 Checking the temperature indicator

Check the temperature indicator on the small cover in the front section for temperatures possibly being exceeded ↪ *Chapter 5.2.3 „Temperature indicator” on page 33*. Defects in electrical components can result from the temperature being exceeded. Contact the Authorized Distributor if the temperature indicator is dark in color and have the system replaced.

10.2.9 Checking the setting of date and time

Check the date and time and correct where applicable ↪ *Chapter 9.7 „Operation” on page 59*.

10.2.10 Checking the function of the door contact switch

Check whether the door contact switches including the magnets are firmly mounted. Check whether the door contact switch switches safely.

10.2.11 Checking the blocking switch

As soon as the blocking switch of the system is set to "Agent disconnect [blocked]", the yellow LED (top right) on the front panel lights up.

10.2.12 Checking for proper connection of the transmission

A pending failure (e.g. via blocking switch or door contact switch) can be transmitted to a permanently manned location. This function is to be checked.

10.2.13 Checking whether shutdown occurs

Signals for the shutdown of external electrical devices (e.g. fans) can be transmitted via the potential-free relay outputs. Check whether shutdown of the external devices is functioning.

10.2.14 Reading out and transferring data

Read out and archive the data of the system for every maintenance and installation. [↪ Chapter 9.3 „Project” on page 56](#) describes how customer data can be read out and changed.

10.2.15 Checking the electrical connections

⚠ WARNING!

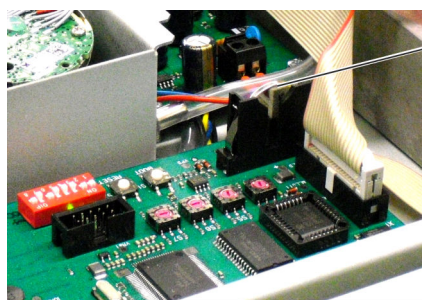
Risk of death or severe physical injury due to electric shock!

→ Check and repair where applicable the electrical connections of the system and the connections to the additional electrical devices that are connected.

10.2.16 Changing the battery "control card CPU3"

⚠ WARNING!

Risk of death or severe physical injury due to electric shock!



1 The replacement of the battery "control card CPU3" (Fig. 43/1) must be reported.

After the replacement of the battery check the real time.

Fig. 43: Battery "control card CPU3"

10.2.17 Checking the DIP switch on the control card CPU3

The DIP switch for the door contact as well as for the language setting can be found on the control card CPU3. The setting of the switch for the door contact can be found in [↪ Chapter 5.3.3 „Door contact / blocking” on page 39](#). The setting for the language can be found in [↪ Chapter 5.2.4 „Language setting for display and operation” on page 34](#).

10.2.18 Checking the networking of the systems

The networking of the systems is described in ↗ *Chapter 5.3.4 „Combination of systems” on page 41.*

This networking is to be checked with the removal of the mains lead and, where applicable, corrected. If any changes are made, they must be reported.

10.2.19 Checking for contamination in the housing

Removed any contamination in the housing (e.g. dust, lint).

10.2.20 Checking loss monitoring

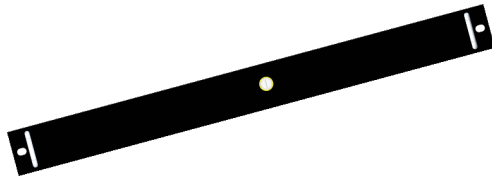


Fig. 44: Loss monitoring

To check the function of the loss check, the system must be connected electrically and raised on the right hand side at an angle of roughly 20° (Fig. 44).

⇒ The message „*Extinguishing agent loss*” is shown in the display of the superordinate system.

INFORMATION

Set the filter time for the check to zero; reset it to the set value afterwards.

10.2.21 Checking the total weight

To prevent a gradual process of extinguishing agent loss, the total weight of the system must be checked and reported. A calibrated scale for loads of up to 20 kg and 10 g resolution is needed for this.

10.2.22 Changing the tank

1.  **WARNING! Danger due to tank change!**

Observe the safety instructions ↗ *Chapter 10.3.1 „Safety instructions for the tank change” on page 69.*

2.  Remove the tank ↗ *Chapter 10.3.2 „Removal” on page 70.*

3. ▶ Dispose of the old tank in a proper and professional manner.

i The fastening material is not included in the scope of delivery of the new tank to be installed. Keep the fastening material if the new tank is not installed directly after the removal of the old tank.

4. ▶ **⚠ WARNING! Danger of a faulty release!**

Ensure that the blocking switch is set to "Agent disconnect [blocked]" before installing a new tank.

5. ▶ Install the new tank in the reverse order.

10.2.23 Concluding the inspection

- Put the system in service again according to the installation instructions in this operating instruction.
- Check whether installation, as before, corresponds to the operation and installation conditions described in this operating instruction. In doing so, also check for any possible openings in the cabinet which could perhaps obstruct successful extinguishing.

10.3 Repairs after a release

10.3.1 Safety instructions for the tank change

⚠ WARNING

Danger for insufficiently qualified personnel!

Insufficiently qualified personnel is incapable of assessing the risk involved when changing the tank and may cause severe or fatal injuries to themselves or others.

- The removal of an empty tank after a release and the installation of a new full tank may only be performed by trained personnel using the materials and tools intended for the task.

⚠ WARNING

Risk of death due to electric shock!

An imminent risk of death or severe physical injury due to electric shock exists if live components are touched.

- Allow only qualified electricians to work on electrical components and the electrical connection.
- Disconnect the system from the power supply:
 - Remove the mains lead.
 - Remove all electrical connections.

⚠ WARNING

Danger due to high pressure!

The propellant cartridge of the release unit is pressurized in an unreleased state at 620 bar. Severe physical injury can result from damage to a pressure hull in an unreleased state.

- Allow only trained personnel to handle and install a new full tank.

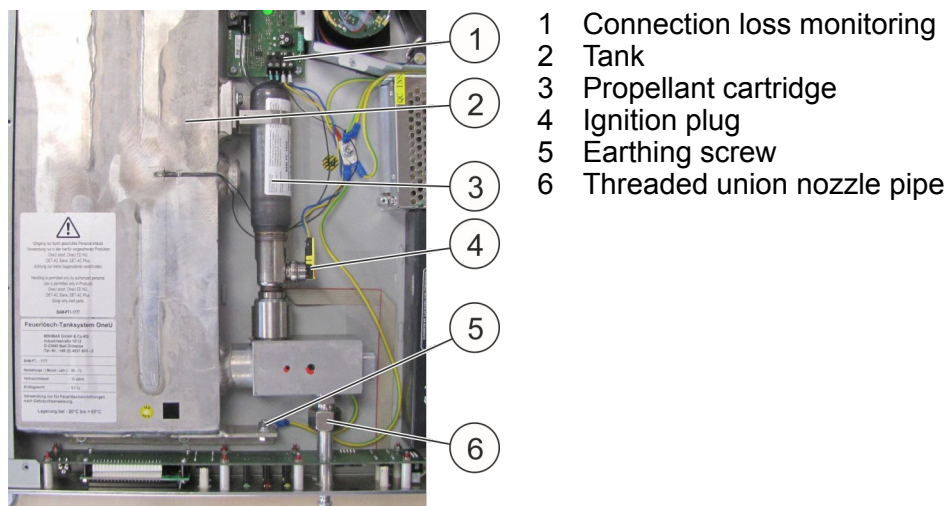


Fig. 45: Overview tank

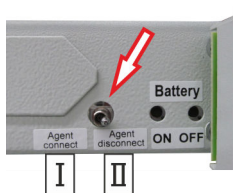


Fig. 46: Blocking switch (on the rear of the system)

10.3.2 Removal

Required tools:

- Slotted screwdriver (size 3.0) for wire reed contact under terminal
- Torx screwdriver (size 10) for cover screws
- Socket wrench 5.5 mm
- 8 mm (flat) spanner for the earthing screws
- Stable storage area

INFORMATION

Only use suitable tools when changing the tank.

1. **⚠ WARNING! Danger of a faulty release!**

To block the system: Switch the blocking switch (Fig. 46/arrow) to "Agent disconnect [blocked]" (Fig. 46/ II).

2. **▶** Disconnect all connection lines from the system.
3. **▶** Remove the system from the cabinet.
4. **▶** Place the system on a fixed, stable surface.
5. **▶** Loosen the screws on the front and rear cover.

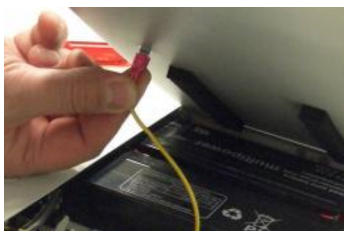


Fig. 47: Earthing plugs

6. **▶** Remove the earthing plugs from the front and rear cover (Fig. 47).

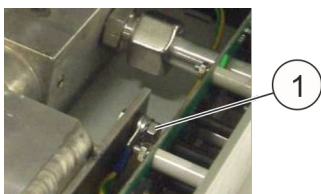


Fig. 48: Earthing screw

7. **▶** Remove the earthing screw (Fig. 48/1) from the tank.

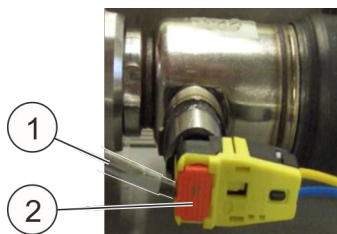


Fig. 49: Ignition plug

8. **▶** Push out the red arrest (Fig. 49/2) at the ignition plug with a small screwdriver (Fig. 49/1).
9. **▶** Pull out the ignition plug.

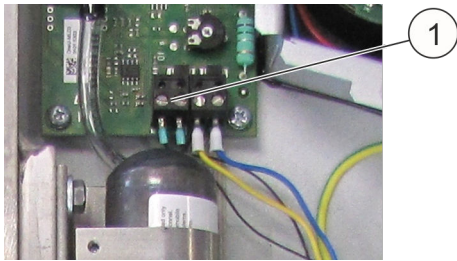


Fig. 50: Connection loss monitoring

10. ➤ Loosen the electrical connection (Fig. 50/1) of the loss monitoring.

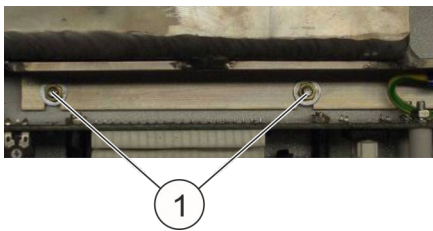


Fig. 51: Tank fastening

11. ➤ Remove the M3 nuts (Fig. 51/1) of the tank fastening with a 5.5 mm socket wrench.

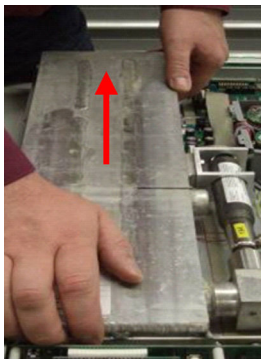


Fig. 52: Pulling out the tank

12. ➤ Lift up the tank in the rear section and carefully pull it out towards the rear (Fig. 52).

10.3.3 Disposal of the old tank and installation of a new tank



Fig. 53: Release unit

1. ▶ The release unit (Fig. 53) is labelled as "RELEASED" as it is a pyrotechnic element.
2. ▶ Dispose of the old tank in a proper and professional manner.
 - i** The fastening material is not included in the scope of delivery of the new tank to be installed. Keep the fastening material if the new tank is not installed directly after the removal of the old tank.*
3. ▶ **⚠ WARNING! Danger of a faulty release!**
 - Ensure that the blocking switch is set to "Agent disconnect [blocked]" before installing a new tank.
4. ▶ Install the new tank in the reverse order.
5. ▶ Perform inspections and maintenance as per ↪ *Chapter 10.2 „Inspection, maintenance and repairs by the Authorized Distributor” on page 62.*

10.4 Firmware update

A new Firmware update can be copied to the system using the Maintenance Program ↪ *Chapter 9 „Maintenance program” on page 54.*

11 Spare parts, accessories, consumables and tools

Part	Part No.
Systems:	
DET-AC III Master	7338.121
DET-AC III Slave	7338.321
EFD III	7338.221
Spare parts:	
Tank system, complete	914166
Fuse 0.315 A / 250 V microfuse T	903147
Terminating resistor 1K8 Ω , 1/10 Watt (for door contact or manual call point)	675235
Terminating resistor 47R with rectifying diode 1N4007 for means of alarm	917751
Resistance 470 Ω , 1/2 Watt (for door contact or manual call point)	675223
Terminating resistor 1K	908119
Terminating resistor 22K	906913
CAN bus connecting cable (Master/Slave) 2.5 m	907531
Cable power supply 2.5 m	903228
Operating instruction, German	916006
Operating instruction, English	916007
Insulating foil AMX4003 1HE	906797
Battery Lithium 3 Volt	801436
USB cable 2.0, A-St to B-St	-
Accessories:	
Limit switch ZS 236-11z-2744 door contact (door contact switch)	889337
Sounder beacon SONFL1X red (acoustic device horn + flashlights)	917453
D-detector DMX3000 manual release, yellow	888845
Consumables:	
Self-tapping screw BZ 5.5x13 Rittal	892350
Countersunk head screw ISO 14581-M3x6-8.8 gal Zn (cover)	915911
Countersunk head screw DIN 965-M3X8 - 5.8	684939
Fillister head screw M6x16 (front cover)	607284
Tools:	
Torx wrench TX10	-
Allen wrench size 2.5 mm	-
8 mm spanner	-
19 mm spanner	-

Part	Part No.
22 mm spanner	-
Cross recess screwdriver for front panel screws	-
Socket wrench 5.5 mm to loosen the tank	-
Spirit level (for alignment)	-
Software:	
Software "Maintenance Program"	-

12 Technical data

Installation dimensions	19", 44 mm (1HE), 660 mm deep (depth above everything)
Housing material	Sheet metal
Weight	Approx. 12.5 kg
Rated voltage	24 V DC, by superordinate system
Emergency power supply	Is carried out via superordinate system and depends on the number of connected systems (approx. 4 h)
Load currents of the power supply unit: I_{maxa} / I_{maxb} I_{min}	1.3 A Approx. 100 mA
Ambient temperature	+10 °C to +40 °C (operating) -20 °C to +65 °C (storage)
Humidity	Up to 96 % (relative), non condensing
Protection type	IP 30
Connections	<ul style="list-style-type: none"> ● Connecting terminal for relay output „Pre-alarm” ● Connecting terminal for relay output „Fire alarm” ● Connecting terminal for relay output „Extinguishing” ● Connecting terminal for relay output „Common failure” ● Plug (RJ12) for door contact switch connection ● Door contact plug 2 ● 3 x (RJ12) plug connection at Rittal CMC-TC I/O Unit (failure, main alarm, pre-alarm) ● 2 x CAN connection for networking ● External alarm device, maximum 500 mA ● Connection for external fill level monitoring and triggering of external tank (only EFD III), maximum 500 mA ● Manual call point plug ● Power supply (UB), maximum 500 mA ● USB connection (type B) ● CAN bus for networking to the CMC III Unit
Protection volume	Maximum 2.8 m ³ (protection volume must not exhibit any recognizable openings)
External devices	<ul style="list-style-type: none"> ● Connection for manual call point ● Connection for door contact ● CAN bus connection for networking with the CMC Unit ● Connection for networking (RJ12-DEC) "DET-AC III Master - DET-AC III Slave"

Approval	<ul style="list-style-type: none"> • VdS • Russian Declaration of Conformity
Tank	<p>Material: aluminum</p> <p>Empty volume: approx. 2.0 liter</p> <p>Contents: approx. 1.8 liter FK-5-1-12 (3M™ Novec™ 1230)</p> <ul style="list-style-type: none"> • Extinguishing agent discharge from pressure charging via propellant cartridge integrated electrical release unit • Integrated extinguishing agent loss / fill level monitoring (display of > 15 % loss)

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Appendix

A EC Declaration of Conformity

EG-Konformitätserklärung

EC Declaration of Conformity

Reg. Nr.: 5 780 402-0



Wir
We

Rittal
GmbH & Co. KG
Auf dem Stützelberg
D-35745 Herborn

erklären, dass das Produkt
declare that the product

DET-AC III Master Brandmelde- und Löschanlage <i>DET-AC III Master Fire alarm and Extinguishing system</i>	DK 7338.121
DET-AC III Slave Ergänzungseinheit <i>Add on unit DET-AC III Slave</i>	DK 7338.221
EFD III Brandfrüherkennungsanlagen <i>Early Fire Detection System EFD III</i>	DK 7338.321

mit der/den folgenden Norm(en) oder Normativen Dokument(en) übereinstimmt.
is in conformity with the following standard(s) or other normative document(s)

EN 60950-1 (2006), A11 (2009)

Einrichtungen der Informationstechnik – Sicherheit – Teil 1: Allgemeine Anforderungen
Information technology equipment – Safety – Part 1: General requirements

EN 61000-6-3 (2007), A1 (2011)

Elektromagnetische Verträglichkeit (EMV) – Teil 6-3: Fachgrundnormen; Störaussendung für Wohnbereich, Geschäfts- und Gewerbebereiche sowie Kleinbetriebe
Electromagnetic compatibility (EMC) – Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments

EN 55022 KI. B (2010)

Einrichtungen der Informationstechnik – Funkstöreigenschaften – Grenzwerte und Messverfahren
Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement

EN 50130-4 (2011)

Alarmanlagen – Teil 4: Elektromagnetische Verträglichkeit – Anforderungen an die Störfestigkeit...
Alarm systems – Part 4: Electromagnetic compatibility – Immunity requirements....

Gemäß den Bestimmungen der Richtlinie(n)
Following the provisions of Directive(s)

2006/95/EG Niederspannungsrichtlinie
Low voltage directive

2004/108/EG EMV-Richtlinie
EMC Directive

Herborn, 08.04.2014
Jahr der ersten Kennzeichnung: 014
Year of first marking.

Frank Himmelhuber, Geschäftsbereichsleiter FuE
Executive Vice President R&D

Bei einer nicht mit uns abgestimmten Änderung des Produkts verliert diese EG-Konformitätserklärung ihre Gültigkeit.
In case of any amendments to the assembly not explicitly agreed with us, this EC Declaration of Conformity shall be invalidated.

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