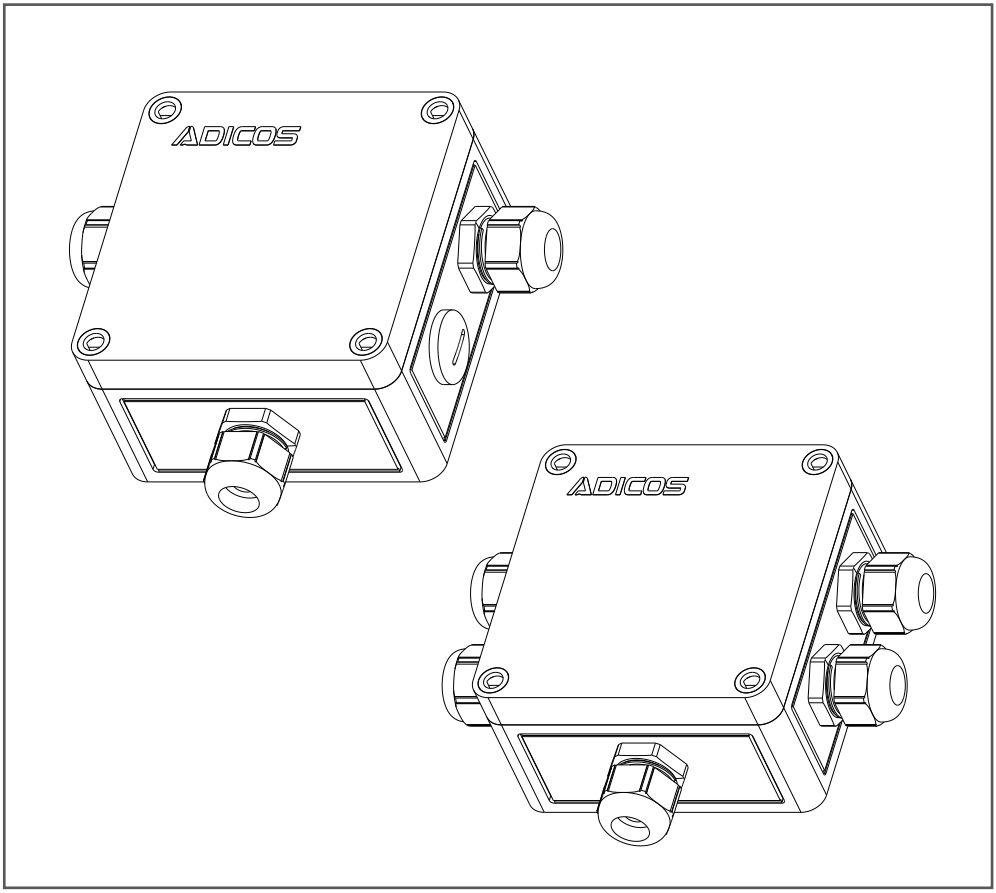

EN CE IP65

Operating Manual

Junction Box

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Junction Box AAB
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– Translation –

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Abstract

The Advanced Discovery System (ADICOS®) is used for early detection of fires in industrial environments. It is comprised of various, separate detector units. By parameterizing and arranging the detectors appropriately, the system fulfills a predefined detection goal. The ADICOS system ensures reliable early detection of embers and smoldering fires even in adverse environments.

ADICOS AAB are our standard junction boxes and serve as wiring aids for ADICOS detectors. They are surface-mounted junction boxes with an internally connected printed circuit board and enable the electrical connection of ADICOS detectors of all models to the special fire alarm system in a very simple way. Thanks to their robust mechanical design, the branch boxes are protected against the ingress of dust and moisture and can be installed and used in harsh industrial environments in the vicinity of the ADICOS detectors.

Features:

- Compact design
- Robust ABS housing
- Easy mounting
- High resistance to moisture and dust
- Control lamp for supply voltage
- Overload protection by integrated fuse
- Low wiring effort
- Connection of supply voltage, M-Bus, external fire alarm LOOP as well as alarm and fault contact
- Power supply terminal for external power supply unit
- Up to five cable glands

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1 About this Manual

1.1 Objective

This manual describes the proper assembly, wiring, commissioning, and operation of ADICOS junction boxes AAB. Once the device has been successfully started up, this document serves as a reference in the event of malfunctions.
It is intended to be used only by properly qualified personnel (see Chap. 2 Safety Instructions).

1.2 Explanation of Symbols

This manual follows a certain structure to make it easy to work with and understand. The following designations are used throughout.

Operational objectives

Operational objectives specify the result to be achieved by following the subsequent instructions. Operational objectives are shown in **bold print**.

Instructions

Instructions are the steps to be taken in order to achieve the previously stated operational objective.
Instructions appear like this

► Indicates a single instruction

1 First of a series of instructions
2 Second of a series of instructions
3 etc.

Intermediate states

When it is possible to describe intermediate states or events resulting from the instruction steps (e.g. screens, internal function steps, etc.), they are shown like this:

▷ Intermediate state

Warnings

The following types of notes are used through this manual:

DANGER!
This combination of symbol and signal word indicates an immediately dangerous situation which could lead to death or severe injuries if it is not avoided.

WARNING!
This combination of symbol and signal word indicates a possibly dangerous situation which could lead to death or severe injuries if it is not avoided.

Tips and recommendations
This type of note provides information that is directly relevant for the further operation of the device.

1.3 Abbreviations

This manual uses the following abbreviations.

Abbr.	Meaning
ADICOS	Advanced Discovery System
AAB	ADICOS Junction Box
M-BM	ADICOS M-Busmaster
NT	ADICOS Power Supply NT V40-A3
FDnet	Field Device Network (fire alarm bus of SIEMENS fire alarm systems)
LSN	Local Security Network (fire alarm bus of BOSCH fire alarm systems)
FAS	Fire Alarm Panel

1.4 Storing the Manual

Store this manual easily reachable and in direct vicinity of the system to enable use as needed.

2 Safety Instructions

When properly installed, started up, operated and serviced, ADICOS junction boxes AAB ensure operational safety at your facility. But it is imperative that the manual, including all safety notes, be read, understood and followed completely.

WARNING!
Personal injury and property damage!
Incorrect installation and operating errors can cause death, serious injury and damage to industrial equipment.
- **Read the entire manual and follow the instructions!**

2.1 Intended Use

ADICOS AAB are junction boxes for the electrical connection of ADICOS detectors with the fire alarm cable of ADICOS systems. They additionally enable feeding-in an external voltage supply using the ADICOS power supply NT V40-A3. In this context, the operating parameters described in Chap. 11, »Technical data« must be met.

Compliance with this manual as well as all applicable country-specific provisions is also part of the intended use.

2.2 Standards and Regulations

The safety and accident prevention regulations applicable for the specific application must be followed during AAB installation, commissioning, maintenance, and test.

The following standards and directives are of particular importance when handling fire alarm systems:

Regulation	Description
VDE 0100	Erection of power installations with rated voltages below 1000 V
VDE 0800	Telecommunications - General concepts - Requirements and tests for the safety of facilities and apparatus
VDE 0833	Alarm Systems for Fire
VDE 0845	Protection of telecommunication systems against lighting, electrostatic discharges and overvoltages from electric power installations; measures against overvoltages
VdS 2095	Guidelines for automatic fire detection and fire alarm systems - planning and installation
DIN 14675	Fire detection and fire alarm systems - design and operation

2.3 Personnel Qualification

Any work on ADICOS AAB may only be performed by qualified personnel. Persons, who can perform work on electrical systems and recognize possible dangers based on their professional education, knowledge, and experience as well as knowledge of the applicable provisions, are considered qualified personnel.

WARNING!
Personal injury and property damage!
Improperly performed work on and with the device can lead to malfuctions.

- **Installation, startup, parameterization and maintenance may be performed only by authorized and properly trained personnel.**

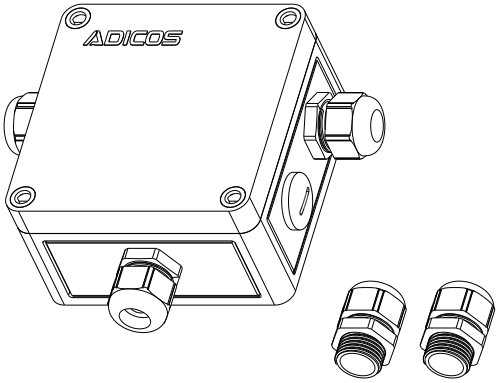
2.4 Modifications

WARNING!
Property damage or detector failure by any form of unauthorized modification!
Any form of unauthorized modification or extension can lead to a failure of the detector system. The warranty claim expires.

- **Never make unauthorized modifications on your own authority.**

3 Scope of Delivery

The following components are included in the scope of delivery of the ADICOS AAB:

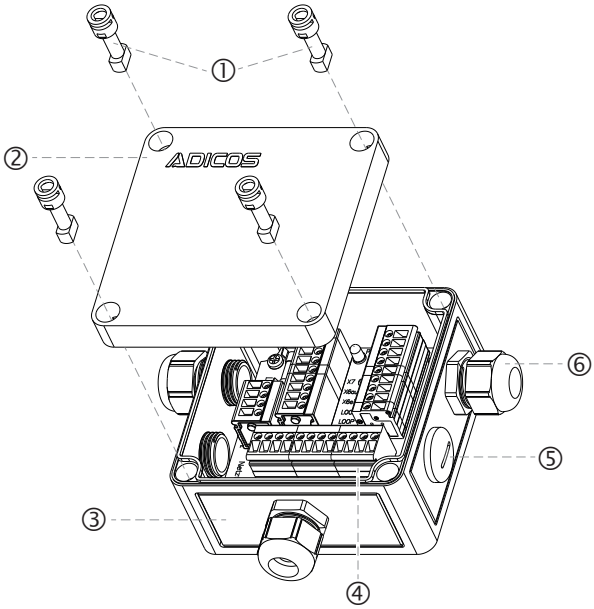


Quantity	Description
1	ADICOS AAB with 3 cable glands and 2 dummy cable glands
2	M20* cable glands

* Are located inside the enclosure at the time of delivery

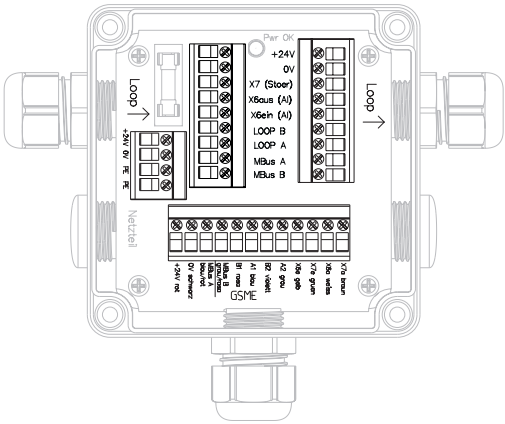
4 Structure

4.1 Overview



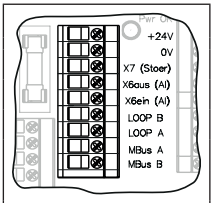
No.	Description
①	Enclosure screws (4x)
②	Enclosure cover
③	Enclosure base
④	AAB circuit board with connection terminals
⑤	Blind cable glands (2x)
⑥	Cable glands (3x)

4.2 Connections

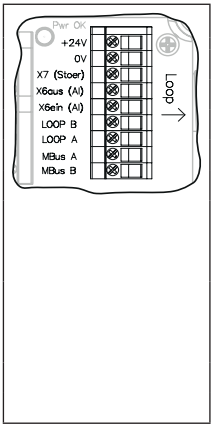


Connection Terminals

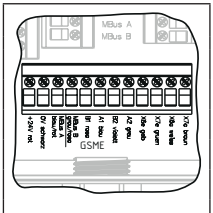
LOOP IN	Input for fire alarm loop
+24V	Voltage supply (+)
0V	Voltage supply (–)
X7 (fault)	Normally closed contact, fault
X6out (alarm)	Normally open contact, alarm
X6in (alarm)	Normally open contact, alarm
LOOP B	External fire alarm LOOP B in SIEMENS FDnet-A (–) BOSCH LSN b1 in
LOOP A	External fire alarm LOOP A in SIEMENS FDnet + BOSCH LSN a in
MBus A	ADICOS M-Bus
MBus B	ADICOS M-Bus



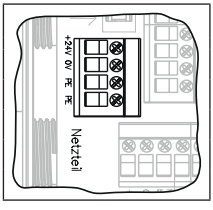
LOOP OUT	Output for fire alarm loop
+24V	Voltage supply (+)
0V	Voltage supply (–)
X7 (fault)	Normally closed contact, fault
X6out (alarm)	Normally open contact, alarm
X6in (alarm)	Normally open contact, alarm
LOOP B	External fire alarm LOOP B out SIEMENS FDnet-B (–) BOSCH LSN b2 out
LOOP A	External fire alarm LOOP A out SIEMENS FDnet + BOSCH LSN a out
MBus A	ADICOS M-Bus
MBus B	ADICOS M-Bus



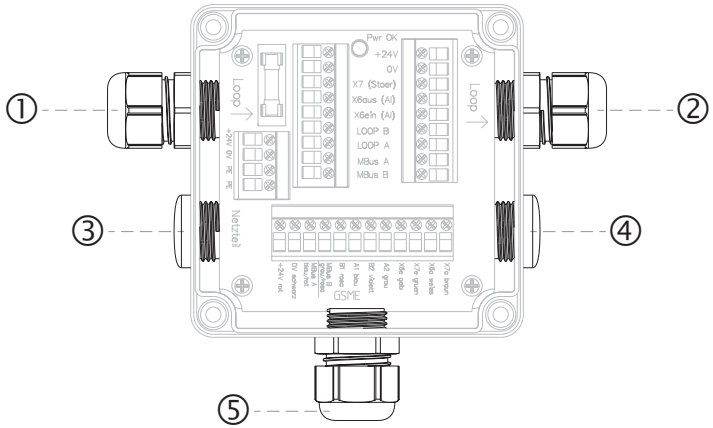
GSME	Detector connection
+24V	Voltage supply +24 V DC (red)
0V	Voltage supply 0 V (black)
MBus A	ADICOS M-Bus (blue/red)
MBus B	ADICOS M-Bus (gray/pink)
B1	Fire panel interface B - in (pink)
A1	Fire panel interface A - in (blue)
B2	Fire panel interface B - out (purple)
A2	Fire panel interface A - out (gray)
X6e	Normally open contact, alarm (yellow)
X7e	Normally closed contact, fault (green)
X6a	Normally open contact, alarm (white)
X7a	Normally closed contact, fault (brown)



Power supply	Coupling of external power supply
0V	External power supply 0 V
+24V	External power supply +24 V DC
PE	Protective conductor
PE	Protective conductor



4.3 Cable Glands



The following assignment is an example only and varies by system configuration.

No.	Description
①	ADICOS primary line (ADICOS M-Bus / power supply / limit value- detection line)
②	ADICOS primary line (ADICOS M-Bus / power supply / limit value- detection line)
③	FAS loop (External fire alarm LOOP) (optional) External power supply (optional)
④	FAS loop (External fire alarm LOOP) (optional)
⑤	ADICOS connection cable for ADICOS detector

4.4 Display Elements

Power LED

The power LED is located on the upper edge of the AAB board, centered between the connection terminals for the fire alarm loops.

It lights up green, if power supply is connected to the ADICOS AAB.

5 Installation

5.1 Selecting the Mounting Location

The following aspects must be considered when selecting the installation location.

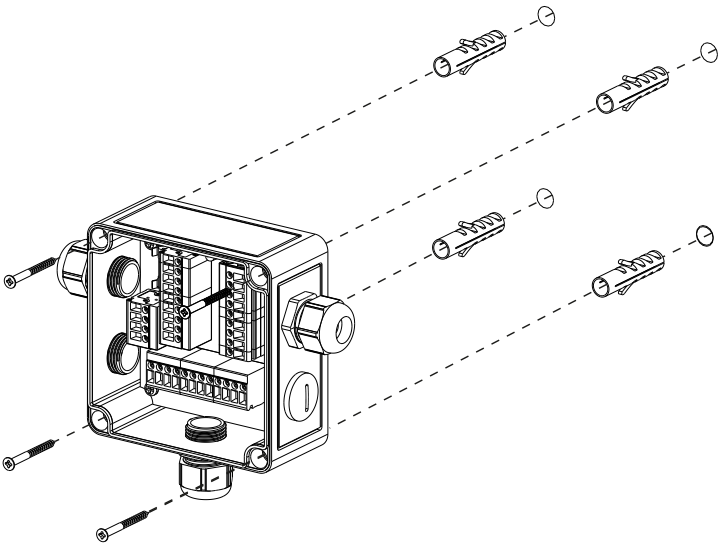
- The installation floor must be sufficiently firm and as vibration-free as possible.
- The installation environment must meet the climate conditions specified in the technical data.
- Install the ADICOS AAB in close proximity to the connected detector and well accessibly.

5.2 Mounting

► Opening the Enclosure Cover

1 Loosen the enclosure screws using a sufficiently large slotted screwdriver (4x)

2 Lift off the enclosure cover



Mounting the ADICOS AAB to a wall

1 Depending on the underground, drill mounting holes for sufficiently dimensioned screws and/or wall plugs (4x) (see drilling plan)

2 Press in wall plugs

3 Open enclosure cover

4 Insert sufficiently dimensioned mounting screws through the tightening channels of the enclosure screws in the enclosure base so that the screws protrude from the rear side of the enclosure (4x)

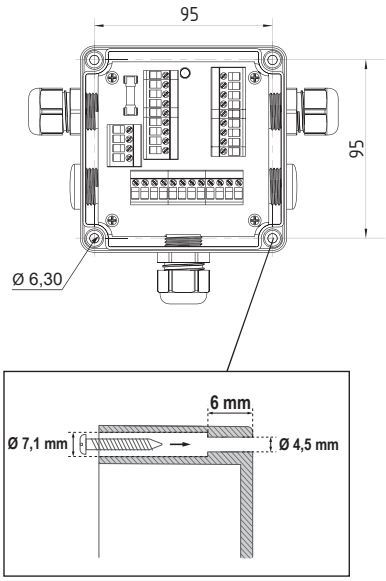
5 Place the enclosure base with the screws onto the mounting holes with wall plugs

6 Tighten the screws *(4x)*

7 If wiring is not completed immediately, close the enclosure cover

Disassembly

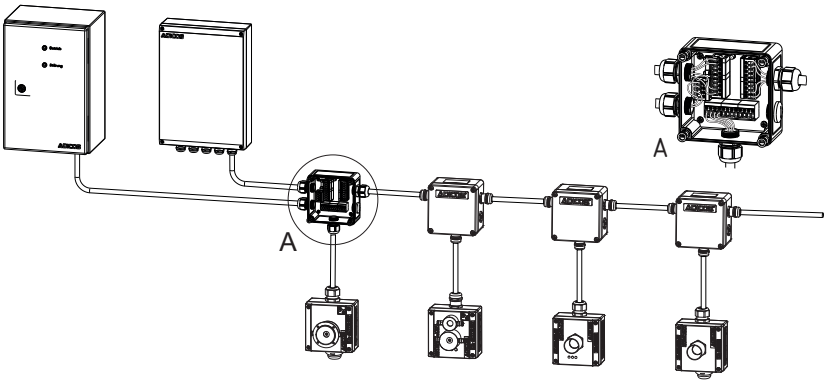
► Carry out disassembly in reverse order



5.3 Wiring

WARNING!
Malfunctioning and failures of the detector system!
Incorrect installation of the ADICOS AAB can cause malfunctioning, leading to failure of the fire detection system.

- **Wiring may only be performed by specialist personnel! (–› Chap. 2.3, Personnel Qualification)**
- **Use ADICOS connection cables for detector wiring only!**
- **Only use suitable fire alarm cables for the ADICOS primary line and FSA loop!**



The wiring plan of the ADICOS AAB varies depending on system configuration and topology. The following procedure applies for all wiring variants.

Wiring the ADICOS AAB

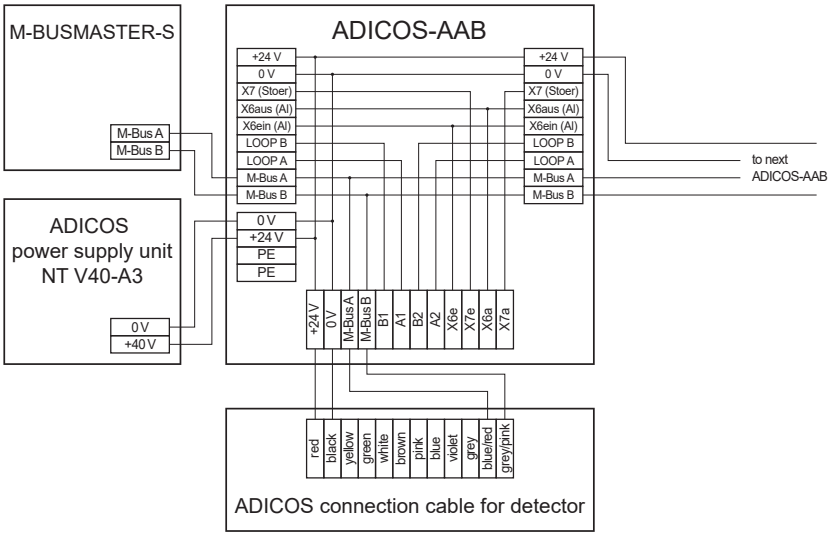
1 Open enclosure cover
2 Open cable glands
3 Route cables through the cable glands into the enclosure according to Chap. 4.3
4 Connect the wires to the connection terminals according the wiring diagram
5 Close cable glands
6 Close enclosure cover

In the case of wiring variants with more than three cables:

Installing additional cable glands

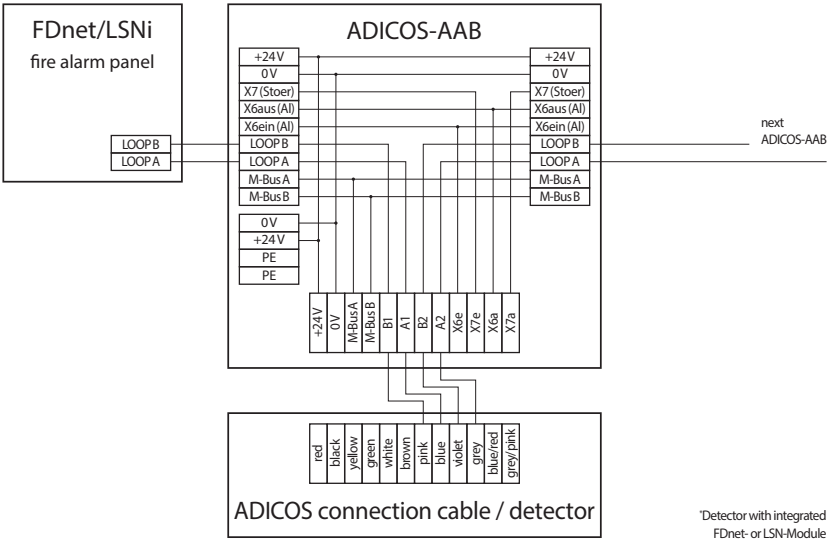
1 Open enclosure cover
2 Take the loose additional cable glands from the enclosure
3 Unscrew the blind plugs ④ and ⑤ (–› Chap. 4.3) using the large slotted screwdriver
4 Screw in the additional glands to the M20 threads using a 25 mm torque wrench (6.0 Nm tightening torque)

M-BUSMASTER and external power supply



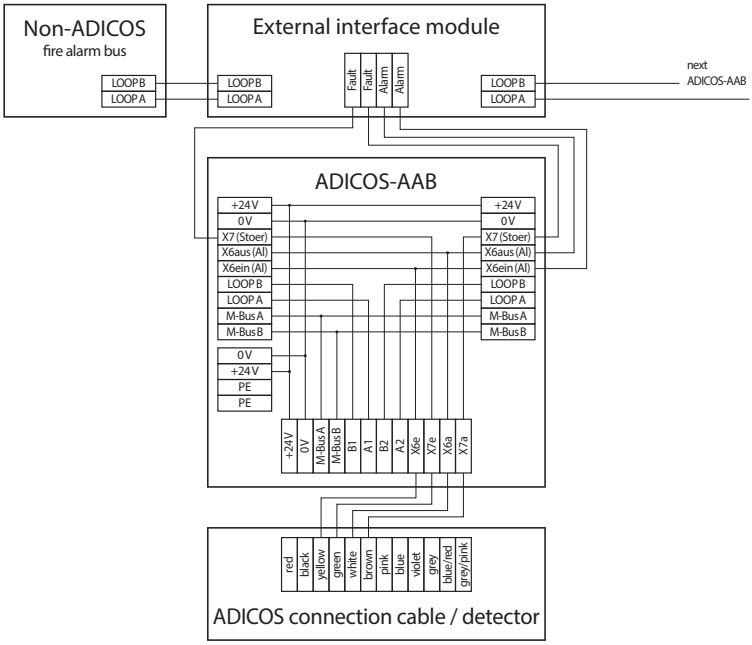
Fire Detector Loop with FDnet/LSNi (internal fire panel interface)

Tips and recommendations
For integration in BOSCH or SIEMENS fire alarm systems, ADICOS detectors must be equipped with an interface module by the manufacturer!

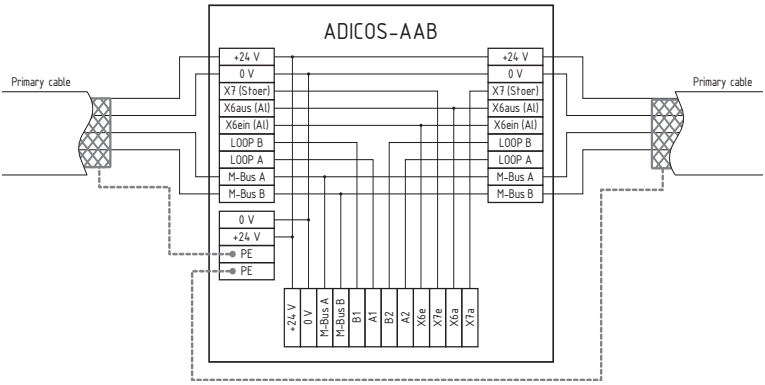


Other fire detector bus systems (external fire panel interface)

Tips and recommendations
For integration in other Non-ADICOS fire alarm systems suitable external interface modules are required.



Primary Cable Shielding



6 Commissioning

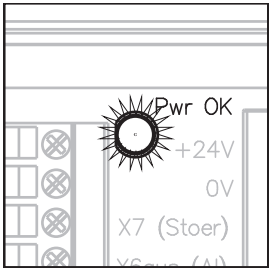
WARNING!
Equipment damage!
ADICOS systems work with electrical current, which can cause equipment damage if not installed properly.

- **Before switching on the system, verify that all components are properly mounted and wired.**
- **Commissioning may be performed only by properly trained personnel. (See Chap. 2.3 Personnel Qualification)**

Tips and recommendations
The ADICOS AAB is a passive component. Separate commissioning is not required.

► ADICOS system commissioning is to be performed according to the instructions of the central unit (M-Busmaster) used.

▷ The green power LED lights up, when the ADICOS system is switched on (↦ Chap. 4.4)



7 Operation

Tips and recommendations
The ADICOS-AAB is a passive component. Its operating state depends on the superordinate central unit.

The green power LED (–› Chap. 4.4) lights up during operation.

8 Failure

If the green power LED does not light up, although the system is switched on:

- ► Check wiring (–› Chap. 5.3)
- ► Check fuse and replace as needed (–› Chap. 9.1)

9 Maintenance

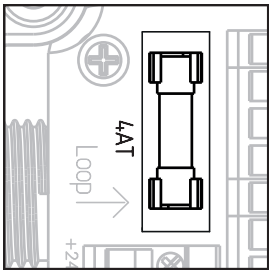
In genereal the ADICOS AAB does not require special maintenance.

9.1 Replacing the Fuse

The ADICOS AAB features an internal fuse to prevent system destruction and/or ignition caused by too high currents in the case of electrical short circuits. The fuse is located in the upper left area of the circuit board.

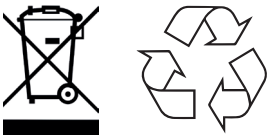
Replacing the fuse

1 Disconnect the ADICOS system from the mains
2 Open enclosure cover
3 Pull fuse vertically from bracket
4 Insert new fuse (4A, slow-blowing) into the bracket
5 Close enclosure cover
6 Switch on ADICOS system



10 Disposal

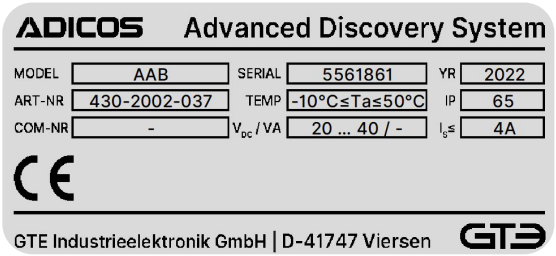
Return the product to the manufacturer after the end of the useful life. The manufacturer ensures environmental-friendly disposal of all components.



11 Technical Data

General information		
Model		AAB
Article No.		430-2002-037
Dimensions (W x H x D)	mm	165 x 135 x 65
Weight	kg	0.38
Degree of protection		IP65
Enclosure		Polystyrene (corrosion resistant)
Installation		Surface-mounted
Cable gland tightening torque	Nm	6.0
Electrical properties		
Voltage range	V	20 ... 40
Max. power loss (LED)	mW	330
Internal fuse	A (sb)	4
Max. cable cross-section	mm^2	2.5
Environmental conditions		
Permissible environment temperature	°C	–10 ... +50
Relative humidity	%	≤ 95 (non-condensing)
Installation environment		vibration-free

11.1 ID Plate



Model:	Device model	SERIAL:	Serial number (variable)	YR:	Year of production (variable)
ART-Nr:	Article number (variable)	TEMP:	Ambient temperature	IP:	Degree of protection
COM-Nr:	Commu-nication number (variabel)	V_{DC}/VA:	Voltage range / maximum power consumption	I_s:	Internal fusing (Short-circuit current)
	CE marking		Information on explosion protection		