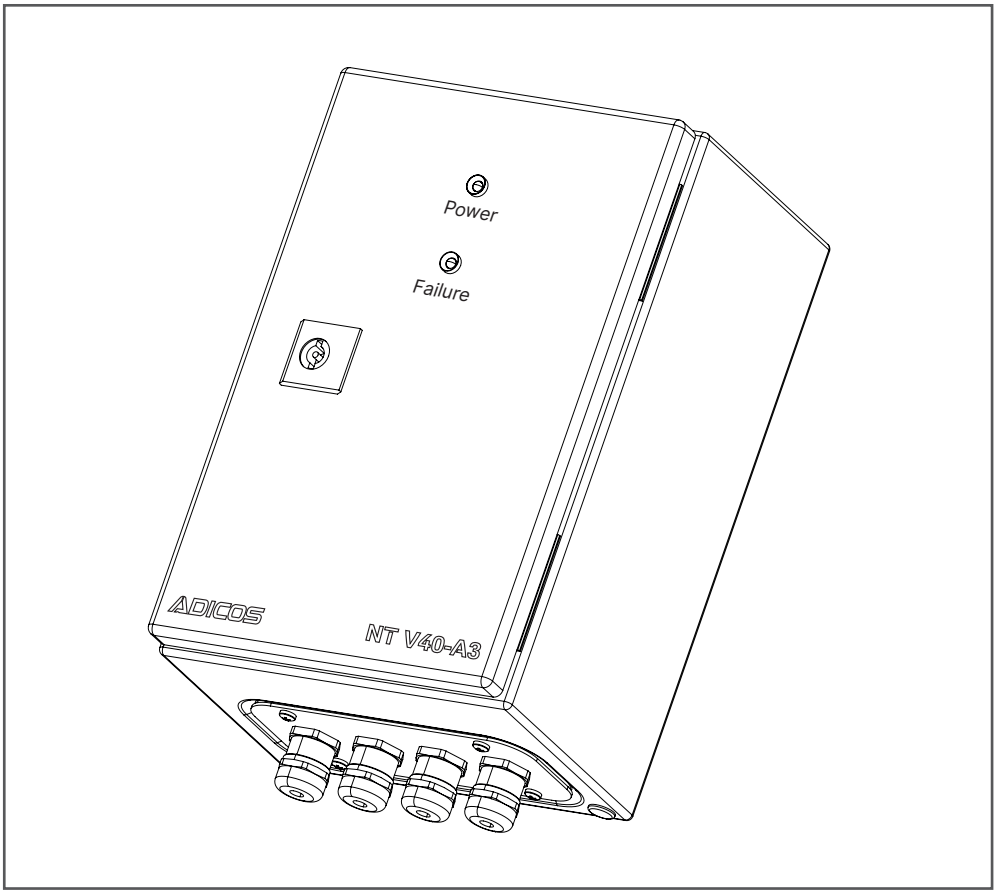

EN CE IP55

Operating Manual

Power Supply Unit for Industrial Fire Detectors

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ADICOS NT V40-A3 - Operating manual
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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.

The industrial detectors in the ADICOS program consume more power than conventional fire detectors. This is why they use a decentralized external power supply instead of the M-BUS-MASTER.

The ADICOS NT V40-A3 – power supply for industrial fire detectors ensures that your complex fire detection system receives the optimal power supply. Its exceptional features include:

- Sturdy enclosure made of sheet steel
- High resistance to moisture and dust
- Supplies up to 15 detectors
- Intelligent short-circuit detection
- Plug-in terminals for up to three detector lines connected in series
- Power failure detection with signal relays
- Fault indicator
- Electronically regulated output voltage
- LED status indicator
- Simple installation and startup

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1 About this Manual

1.1 Objective

This manual describes how to properly install, wire, start up and operate the ADICOS NT V40-A3. 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 (Refer to Chap. »2. For your safety«).

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.

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

NOTICE!
This combination of symbol and signal word indicates a possibly dangerous situation which could lead to property damage 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

The following abbreviations are used through this manual:

Abbr.	Meaning
ADICOS	Advanced Discovery System
AAB	ADICOS branching and connection box
M-BM	ADICOS M-BUSMASTER
NT	ADICOS NT V40-A3 - power supply for industrial fire detectors

1.4 Storing this Manual

Store this manual near the equipment, in a place where it can easily be accessed when needed for reference.

2 Safety Instructions

When properly installed, started up, operated and serviced, ADICOS NT V40-A3s 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

The ADICOS NT V40-A3 is designed in line with state-of-the-art technology and accepted safety regulations.
The ADICOS NT V40-A3 can supply power to up to 15 detectors.

The device may be used only in compliance with the limits stated as technical operating specifications. These can be found in Chap. 11, »Technical Data«.
Intended use also includes following the instructions in this manual and complying with all relevant local regulations.

The ADICOS NT V40-A3 may not be used for any other purpose. If the device is used in any other way, or if changes are made to the product, including in the course of installation and maintenance, the warranty claim is no longer valid.

2.2 Unintended Use

The ADICOS NT V40-A3 may not be installed in potentially explosive areas.

2.3 Standards and Regulations

The safety and accident prevention regulations relevant to the specific application must be complied with when installing, starting up, servicing and inspecting the device.

The following standards and guidelines in their current version are particularly relevant:

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 lightning, electrostatic discharges and overvoltages from electric power installations – provisions against overvoltages
VdS 2095	Guidelines for automatic fire detection and fire alarm systems - planning and installation
DIN 14675	Fire detection and fire alarm systems – setup and operation

2.4 Personnel Qualification

Any work on ADICOS systems 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 malfunctions.

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

2.5 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.**

2.6 Accessories and Spare Parts

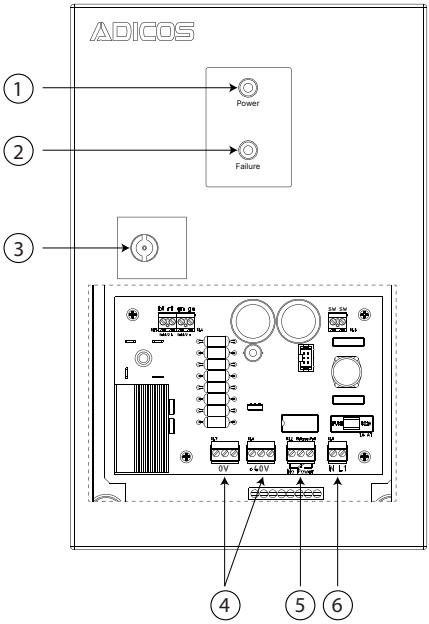
WARNING!
Property damage due to short circuit or failure of the detector system
The use of parts other than the manufacturer's original spare parts and original accessories may result in property damage due to short circuits.

- **Only use original spare parts and original accessories!**
- **Original spare parts and accessories may only be installed by trained specialist personnel.**
- **Qualified personnel are persons as described in Chap. 2.3.**

3 Description of Product

The ADICOS NT V40-A3 is designed specifically to supply energy to ADICOS detectors. Its output voltage can supply up to 15 GSME or HOTSPOT detectors, depending on the cable paths and cross-sections. Power to the NT V40-A3 is supplied via 230 VAC mains voltage. One of its features is power failure detection with a signal relay. The sturdy sheet steel enclosure meets the requirements pertaining to operation of fire detectors in industrial environments.

3.1 Overview



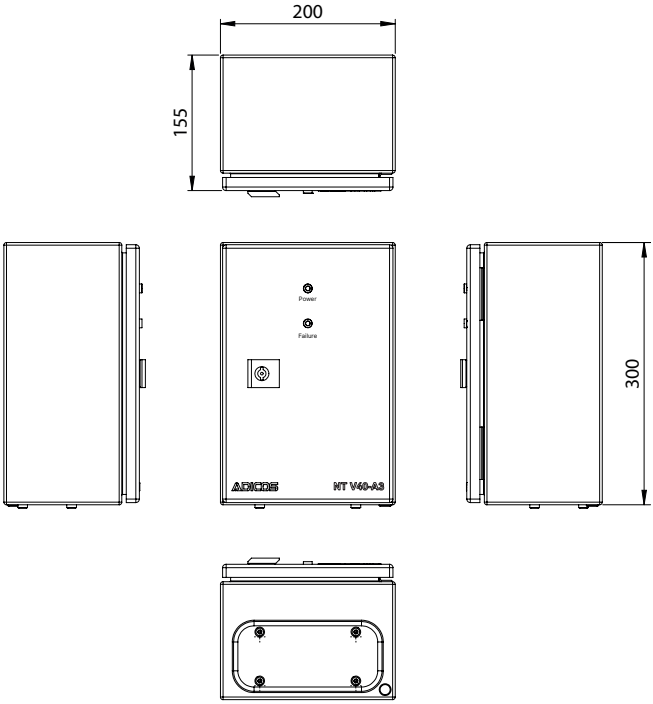
No.	Description
①	Power light
②	Failure light
③	Lock
④	Power supply port for detector
⑤	Relay contact to signal fault in the event of power failure
⑥	Current supply for power supply unit

3.2 Scope of Delivery

Check that the delivery is complete and no items are damaged. The scope of delivery includes:

- Power supply unit NT V40-A3
- Mounting bracket
- Mounting instructions
- Instruction manual
- Cable gland plate (perforated)
- Cable fittings

3.3 Dimensions



4 Functioning

The ADICOS NT V40-A3 is an external device used to supply power to up to 15 detectors, e.g. detectors in the GSME or HOTSPOTseries. The short-circuit-proof power supply ensures optimal power supply to complex fire detection systems in large industrial plants and power plants. The relay and the mode LED on the power supply indicate the current functional status.

5 Installation

WARNING!
Risk of malfunctioning and failure of the detection system!
Incorrect installation of the ADICOS NT V40-A3 can lead to faults and failures of the detector system.

- **Installation work may only be performed by specialist personnel!**
- **De-energize the detector system for any installation work and secure against unintentional reactivation!**

5.1 Requirements of Mounting Location

The ADICOS NT V40-A3 is not approved for use in potentially explosive areas and may never be used in such areas.

5.1.1 Protective Measures

To ensure smooth operation of the ADICOS NT V40-A3, always consider the following factors when choosing a place to attach the device.

Temperature

Even under the most unfavorable conditions, the ambient temperature at the mounting location must remain within the temperature range specified for the ADICOS NT V40-A3 (Refer to Chap. »11 Technical Data«).

Moisture

When choosing a place to install the ADICOS NT V40-A3, take into consideration that it may not be exposed to moisture. Keep in mind that water could be used for cleaning purposes near the mounting location.

Vibration

The electronics contained in the ADICOS NT V40-A3 can be damaged when subjected to vibration. If there are any sources of strong vibration near where the power supply unit is installed, it has to be positioned such that it is immune to the vibration.

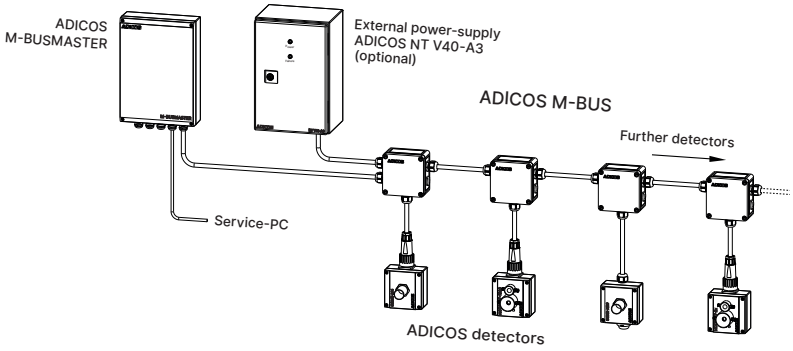
Electromagnetic Radiation

The electronics contained in the ADICOS NT V40-A3 can be impaired by electromagnetic radiation. So do not place the power supply unit near high voltage equipment. And always use shielded cable.

5.2 Wiring Specifications

WARNING!
Gefahr von Störungen und Ausfall der Melder-Anlage!
Incorrect wiring of the power supply NT V40-A3 can lead to faults and failures of the detector system.

- **Wiring may only be performed by specialist personnel! (→ Chap. 2.3, Personnel qualification)**
- **De-energize the entire detector system for any wiring!**
- **Use ADICOS connection cables only for connecting detectors as well as ADICOS junction statt branching and connection boxes!**



In addition to the basic wiring configuration shown here, refer to the wiring examples in the manuals for the individual detectors.
When wiring the devices, be aware of the number of detectors and the maximum cable lengths (Refer to Chap. “5.4 Mounting”).

5.3 Number of Detectors and Line Lengths

The ADICOS detectors have a maximum power consumption of 200 mA at 40 VDC and 350 mA when using internal detector heating. This is why up to 15 ADICOS detectors can be operated from a single power supply. When detector heating is activated, the maximum number of detectors is reduced to eight.
The conduction loss may not exceed 18 VDC; otherwise the detectors would not be consistently supplied with sufficient voltage.

Line length with maximum number of detectors or maximum load

Core cross-section [mm²]	Maximum cable length [m]
0.75	260
1	350
1.5	520

5.4 Mounting

DANGER!
Property damage due to electrical voltage
ADICOS systems work with electrical current, which can cause equipment damage and fire if not installed properly.

- **Deenergize the entire detector system before mounting the device!**
- **Mounting may be performed only by properly trained personnel.**

CAUTION!
Risk of injury!
The ADICOS NT V40-A3 is heavy. Incorrect mounting or the use of unsuitable wall mounts can result in injury.

- **Mounting in a suitable location may be performed only by properly trained personnel.**

5.4.1 Preparing for Installation

1. Remove the locking plate from the underside of the electrical cabinet.
2. Install the cable duct (included in scope of delivery). Follow the instructions provided with the cable duct.

5.4.2 Installing Electrical Cabinet

1 Select a suitable mounting location.

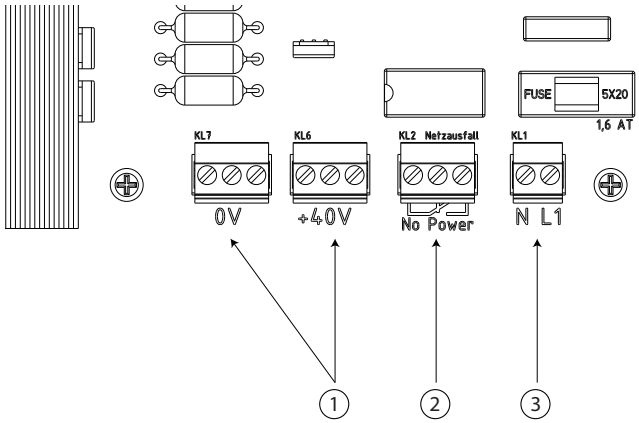
2 Remove the plastic caps from the back of the electrical cabinet.

3 Attach the included mounting bracket to the electrical cabinet (Refer to included mounting instructions).

4 Use four screws to fasten the ADICOS NT V40-A3 to the wall. Use fittings suitable to the wall design.

5.4.3 Wiring

1 Connect the components to one another. Follow the respective instructions (Refer to Chap. »5.2 Wiring Specifications«).



No.	Description
①	Power supply port for detector
②	Relay contact to signal fault in the event of power failure
③	Current supply for power supply unit

2 Thread the power supply lines for the detectors (max. 3) through the cable ducts and into the ADICOS NT V40-A3.

3 Connect the power supply lines for the detectors to KL.6 and KL.7 (①).

4 If needed, connect the relay contact (2) to signal fault in the event of power failure.

5 Connect the ADICOS NT V40-A3 to the power supply via KL.1 (③).

6 Commissioning

► Supply voltage to the device to start up the ADICOS NT V40-A3.

▷ The green signal LED (labeled “Betrieb”) is illuminated when the power supply is in operation.

7 Operation

During operation, the ADICOS NT V40-A3 supplies up to15 ADICOS industrial fire detectors, e.g. ADICOS GSME-M4 or ADICOS HOTSPOT-1000.

8 Maintenance

8.1 Cleaning

DANGER!
Risk of electric shock if not cleaned correctly!
ADICOS equipment works with electric current. Failure to clean the equipment properly can lead to electric shock.

- **Deenergize the entire detector system before cleaning the device!**

The ADICOS NT V40-A3 electrical cabinet can be cleaned with a soft, damp cloth and dishwashing liquid. Scouring agents, acids and bases may not be used; do not apply water pressure to clean. Use caution to prevent water from penetrating the electrical cabinet. The ADICOS V40-A3 will not function correctly if it is not cleaned properly.

8.2 Replacing the ADICOS NT V40-A3

WARNING!
Impaired function!
Defective components can impair proper functioning of the ADICOS equipment. The equipment no longer works as intended.

- **If it is defective in any way, immediately replace the ADICOS NT V40-A3**

8.3 Maintenance

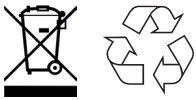
The ADICOS NT V40-A3 does not contain any wearing parts or consumables. So no maintenance is required in this regard.

9 Failure

What to do, if ...	Description	Remedy
... the "Fault" light (labeled "Störung") is illuminated	There is a short-circuit in the system.	Check the device and lines.
... no detectors are working and none of the displays on the power supply unit are illuminated	The mains voltage is disrupted or there is a defect in the ADICOS NT V40-A3.	
... some of the detectors do not work	The voltage is insufficient to supply the device: – to many detectors are connected. – The maximum line length has been exceeded – Detector heating is on. – Line interrupted	– Reduce the number of detectors. – Adjust the line length. – Deactivate detector heating. – Check wiring and correct.
... none of the detectors work	The connection between the first power supply unit and the first junction box is faulty.	Fix the connection.

10 Disposal

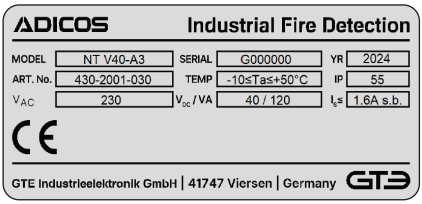
Return the device to the manufacturer when it reaches the end of its serviceable life. The manufacturer will ensure that the components are disposed of properly, in an environmentally friendly manner.



11 Technical Data

Power supply:	AC 230 V
Output voltage:	DC 40 V
Power output:	120 VA
Input fuse:	1.6 A, slow-blow
Output fuse:	Polyfuse
Device temperature range:	–10 ... +50 °C
Relative humidity:	≤ 95 % relative humidity (non-condensing)
Enclosure:	Steel enclosure
Dimensions (H x W x D):	300 mm x 200 mm x 155 mm
Weight:	6.3 kg
Degree of protection:	IP55

11.1 ID Plate



Model	Device model	SERIAL	Serial number (variable)	YR:	Year of production (variable)
ART. No.	Article number (variable)	TEMP	Ambient temperature	IP:	Degree of protection
V_{AC}	Power supply	V_{DC}/VA	Power supply / power output	I_s :	Input fuse
	CE marking				