

Supplementary Instruction Manual for X20-Detectors

Fire Gas Detector GSME®

Supplementary Instructions for GSME-X20
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– Translation –

Manufacturer:
GTE Industrieelektronik GmbH
Helmholtzstr. 21, 38-40
41747 Viersen
GERMANY

Support hotline: +49 2162 3703-0
E-Mail: support.adicos@gte.de

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Subject to technical changes!

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Brief Description

The Advanced Discovery System (in short: ADICOS) is used for early detection of fire scenarios in the industrial environment. It comprises different, independent detector units that enable interference-resistant fulfillment of the detection objective defined during planning via suitable layout and parameterization.

ADICOS GSME X20 are fire detectors equipped with semiconductors gas sensors and intelligent analysis electronics.

By monitoring the concentration of typical fire gases, they detect open and hidden fires already in the initial phase. Alarms are transmitted with aid of integrated relays.

ADICOS X20 detectors are designed for operation in hazardous dust atmospheres.

The detector units are connected using the ADICOS M-Bus. A service software allows the parameterization of every individual detector and stores all sensor data for statistical analysis.

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1 About this manual

1.1 Objective

This manual describes the special requirements on installation, wiring, commissioning, and operation of ADICOS detectors for explosive atmospheres. They are exclusively addressed to knowledgeable specialist personnel (→ Chap. 2, Safety instructions).

1.2 Explanation of symbols

This manual features a continuous structure for best possible comprehension. The following labels are used.

Warning signs

This manual uses the following information types.



Tips and recommendations

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



NOTICE!

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



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.



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.

1.3 Storing this manual

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

2 Safety instructions

ADICOS detectors for explosive atmospheres (ADICOS X20-Detectors) ensure operational safety assuming proper installation, commissioning, operation, and maintenance. For this purpose, it is absolutely required to completely read, understand, and follow these instructions and the safety information contained.

**DANGER!**

Installation and operating errors can lead to fatal and severe injuries and damage to the industrial plant.

- **Read and follow these instructions carefully!**

2.1 Intended use

ADICOS X20-Detectors are designated for the detection of fire scenarios in potentially explosive atmospheres of zones 20, 21, and 22. In this context, the operating parameters described in Chap. 8, »Specifications« must be met. Any deviating use requires prior consultation with the manufacturer.

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 observed during detector installation, commissioning, maintenance, and test.

The following standards and directives are of particular importance when handling potentially explosive atmospheres:

Regulation	Description
2014/34/EU	European ATEX Directive
1999/92/EC	European ATEX Operation Directive
89/686/EEC	European Personal Protective Equipment Directive
DIN EN 60079	Explosive atmospheres
DIN EN 60529	Degrees of protection provided by enclosures
DIN EN 60691	Thermal-links - Requirements And Application Guide

2.3 Personnel qualification

Any work on the control 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.



Tips and recommendations

Installation, commissioning, parameterization, and maintenance may only be performed by authorized and respectively trained personnel

2.4 Handling electrical voltage



DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Do not open enclosure!**
- **De-energize the entire detector system and secure against unintentionally reactivation for all wiring work!**

2.5 Modification



NOTICE!

Damage to property due to unauthorized modification

Any form of unauthorized modification can lead to material damage.

- **Modification of the GSME is expressly prohibited!**

2.6 Accessories and spare parts



NOTICE!

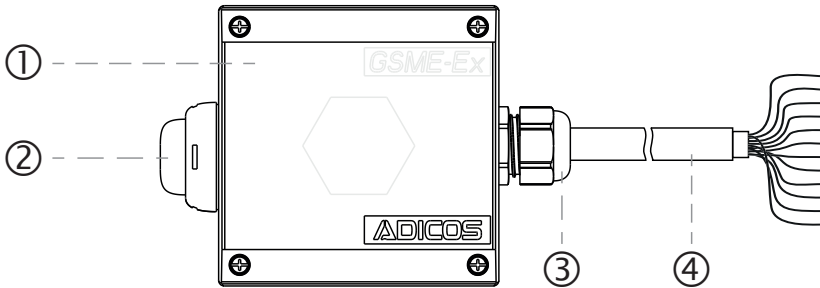
Material damage due to the use of incorrect components.

The use of parts other than the original spare parts and accessories of the manufacturer can lead to material damage due to short circuit.

- **Only use original spare parts and original accessories.**

3 Structure

3.1 Overview



No.	Description
①	Detector enclosure
②	Signal Dome
③	Ex cable gland
④	Ready-made ADICOS connection cable

3.2 Cable assignment

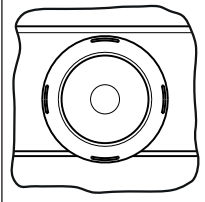
Wire	Color	Signal	Signal limit contact
1	black	Operating voltage 24 ... 40 V DC non-polarized	
1	white		
2	black	Relay output X6 e	Alarm NO ¹
2	white	Relay output X6 a	Alarm NO ¹
3	black	Relay output X7 a	Fault NC
3	white	Relay output X7 e	Fault NC
4	black	M-bus max. 40 V non-polarized	
4	white		

¹ with series resistor, standard 680 Ω

Option Auxiliary Relay

Wire	Color	Auxiliary relay
5	black	
5	white	NC
6	black	NO
6	white	C

3.3 Display elements

Signal Dome	
<p>The signal dome is a translucent element. It includes the status LED to indicate the operating condition of the X20 detectors.</p> <p>The light signals of the ADICOS X20-Detectors are identical to the signals of the non-Ex ADICOS detectors.</p> <p>Normal Operation = "green" Alarm = "red" Fault = "yellow"</p>	

4 Installation

4.1 Mounting

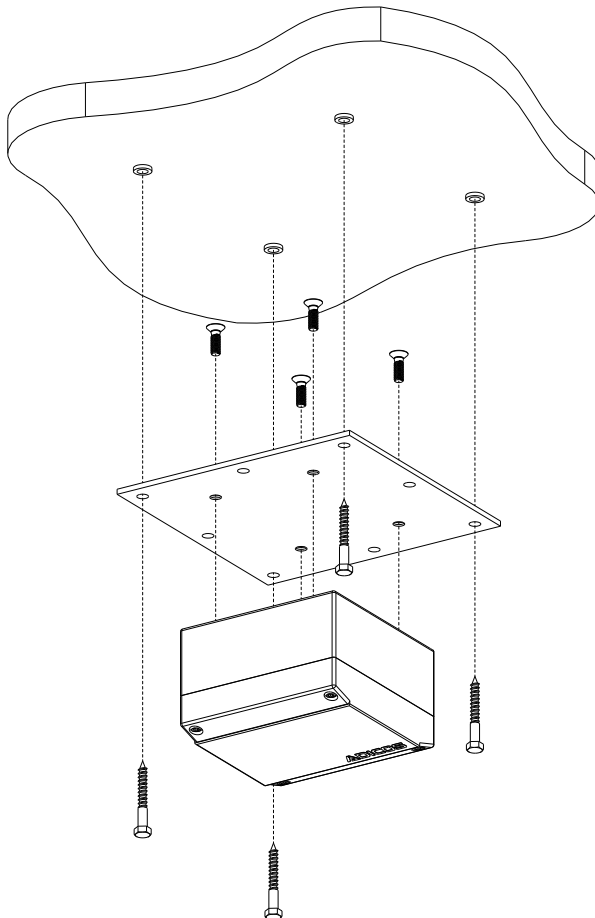


DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Do not open enclosure! Mount the device with closed housing!**
- **Use ADICOS mounting plate!**



4.2 Wiring

**DANGER!****Risk of explosion due to electrical voltage in hazardous areas.**

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Do not open enclosure!**
- **De-energize the entire detector system and secure against unintentionally reactivation for all wiring work!**
- **In the case of wiring within potentially explosive atmospheres, only use Ex-protected connection boxes with respective approval!**
- **Do not bend connection cable! Observe minimum bending radius!** (→ Chap. 8, Specifications)

5 Commissioning

**DANGER!****Risk of explosion due to electrical voltage in hazardous areas.**

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Prior to switching on, check that all detectors are properly mounted and wired!**

6 Operation

**DANGER!****Risk of explosion due to electrical voltage in hazardous areas.**

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Never open the enclosure or loosen the cable gland during operation!**

7 Maintenance

7.1 Detector replacement



DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

The electronics of ADICOS X20-Detectors works with an electrical voltage that can trigger an explosion in potentially explosive atmospheres.

- **Do not open enclosure!**
- **De-energize the entire detector system and secure against unintentionally reactivation for all wiring work!**
- **Replace the closed detector including connection cable only!**

8 Specifications

Specifications regarding explosion protection		
		GSME-X20
Explosion protection class:		Ex ta IIIC 105°C Da / IP6x
Surface temperature:	°C	< 105
Device group:		II, category 1D
Type approval:		Certificate according to 2014/34/EU
Bending radius connection cable	mm	> 91,5



ADICOS X20-Detectors are rated **Protection by enclosure "ta"**.

- **An Ex barrier is not mandatory!**

9 Appendix

9.1 ADICOS mounting plate

