

EN **CE** **IP64**

Supplementary Instruction Manual for HOTSPOT-X20

IR Heat Detector

Supplementary Instructions for HOTSPOT-X20
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– Translation –

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Subject to technical changes!

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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 detectors of the HOTSPOT product series are equipped with thermal imaging sensors and use infrared measurement technology and intelligent signal analysis to detect all types of smoldering fires and open fires, even in the incipient stage. The fast response speed of 100 milliseconds enables the monitoring of conveyor belts or other conveyor systems, e.g. on moving embers.

ADICOS X20 detectors are designed for operation within explosive atmospheres up to ATEX zone 20.

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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 up to ATEX zone 20. 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

The following types of notes are used through this manual.

**DANGER!**

This combination of symbol and signal word indicates an immediately dangerous situation that will lead to death or severe injuries if not avoided.

**WARNING!**

This combination of symbol and signal word indicates a possibly dangerous situation that could lead to death or severe injuries if not avoided.

**Explosion Protection**

This information type signals measures that must be implemented for maintaining the Explosion protection.

**Tips and recommendations**

Helpful tips and recommendations as well as information to ensure efficient and uninterrupted use.

1.3 Storing the Manual

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

2 Safety Instructions

ADICOS HOTSPOT-X20 detectors for explosive atmospheres up ATEX zone 20 ensure operational safety assuming proper installation, commissioning, operation, and maintenance. For this purpose, it is absolutely required to completely read, understand, and follow this manual and the safety information contained.



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!**



Explosion protection

When using ADICOS detectors in potentially explosive atmospheres, follow the specifications of the ATEX operating directive.

2.1 Intended Use

ADICOS HOTSPOT-X20 are designated for the detection of fire scenarios in explosive atmospheres of ATEX zone 20, 21 and 22. In this context, the operating parameters described in Chap. 9, »Technical Data« 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 in their current version are of particular importance when handling potentially explosive atmospheres:

Standards and Regulations	Description
EN 60079-0	Explosive atmospheres - Part 0: Equipment - General requirements
EN 60079-31	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure „t“
EN 60691	Thermal-links – Requirements and application guide
EN 60529	Degrees of protection provided by enclosures (IP Code)
2014/34/EU	ATEX product directive (about equipment and protective systems intended for use in potentially explosive atmospheres)
1999/92/EG	ATEX operating directive (on safety and health protection of workers potentially at risk from explosive atmospheres)

2.3 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!****Risk of property damage and personal injury!**

Improperly performed work on and with the device can lead to malfunctions.

- **Installation, commissioning, parametrization and maintenance may only be performed by authorized and appropriately trained personnel!**

2.4 Handling Electrical Voltage

**DANGER!****Risk of explosion by electrical voltage in potentially explosive atmospheres**

The electronics of ADICOS HOTSPOT-X20 detectors requires 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

**WARNING!****Risk of property damage by any form of unauthorized modification**

Any form of unauthorized modification or extension can lead to a failure of the detector system.

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

2.6 Accessories and Spare Parts

**WARNING!****Risk of property damage due to short circuit**

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!**

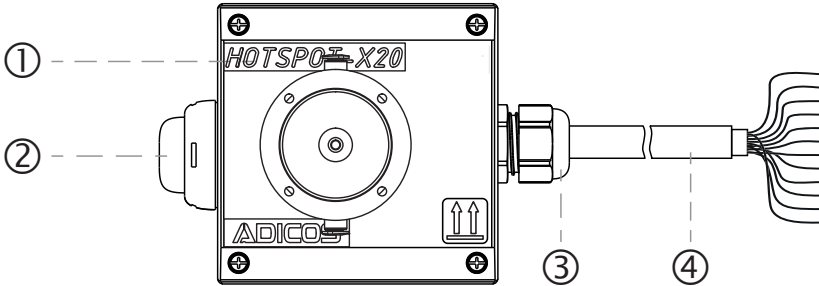
**WARNING!****Risk of property damage due to the use of incorrect components**

The original spare parts and accessories may only be installed by trained specialist personnel.

- **Qualified personnel are persons as described in Chap. 2.3!**

3 Structure

3.1 Overview



No.	Description
①	Detector enclosure
②	Signal lamp cap
③	Explosion proof cable gland
④	Ready-made ADICOS connection cable

3.2 Cable Assignment

Wire	Color	Signal	Signal limit contact
1	black	Operating voltage DC 21.6 ... 40 V 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

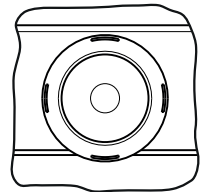
Option auxiliary relays

Wire	Color	Auxiliary relay
5	black	
5	white	Normally closed
6	black	Normally open
6	white	Common

3.3 Display elements**Signal calotte**

The signal calotte is a translucent element, through which the status LED of the HOTSPOT-X20 detector located inside the enclosure can be seen.

The light signals of the ADICOS HOTSPOT-X20 detectors are identical to the signals of the not explosion proof ADICOS detectors.



4 Installation

4.1 Mounting

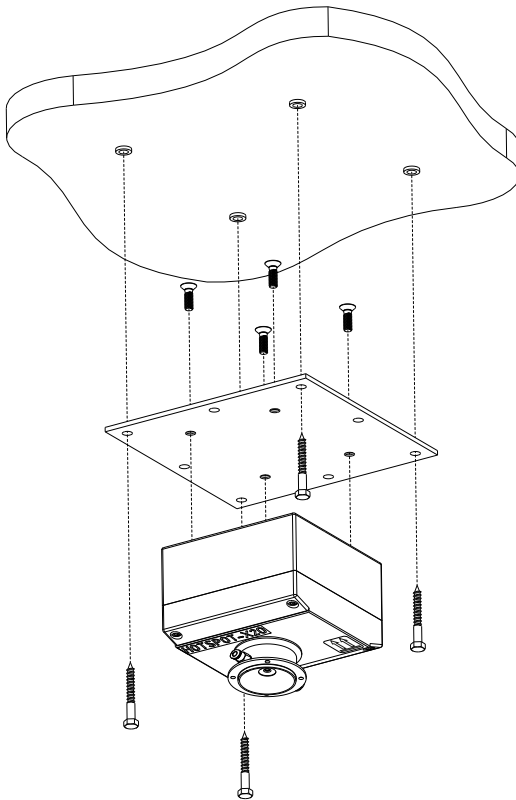


DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

The electronics of ADICOS HOTSPOT-X20 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, if necessary!**



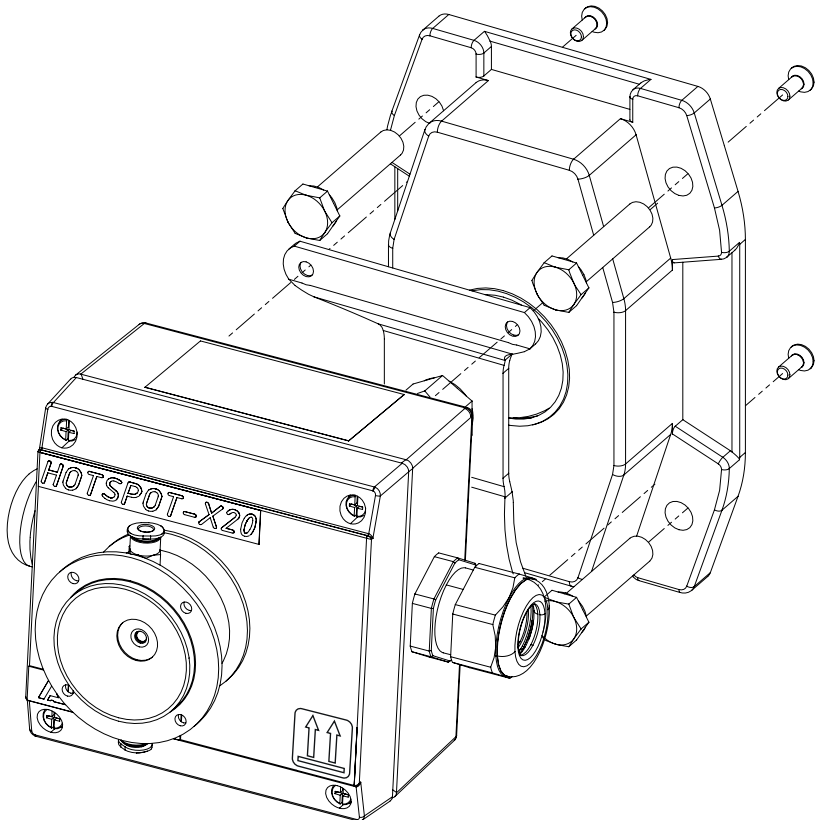
4.2 Mounting on Mounting Bracket

**WARNING!**

Risk of explosion in hazardous areas due to electrical voltage.

ADICOS HOTSPOT-X0 detectors must be mounted with closed enclosure.

- **Do not open enclosure!**
- **Use ADICOS mounting bracket!**



4.3 Wiring

Wiring according to chapter 3.2.



DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

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

- **Do not open enclosure! Mount the device with closed 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. 9, Technical Data)

5 Commissioning



DANGER!

Risk of explosion due to electrical voltage in hazardous areas.

The electronics of ADICOS HOTSPOT-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 HOTSPOT-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



DANGER!

Risk of explosion in hazardous areas due to electrical voltage.

The electronics of the ADICOS HOTSPOT-X20 detectors requires 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 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.



9 Technical Data

General

Model:		HOTSPOT-X20
Item No.:		410-2001-220
Enclosure dimensions:	mm	148 x 100 x 88 (Length x Width x Depth) (Length: cable gland included)
Weight (7 m cable incl.):	kg	2
Degree of protection:		IP 64
Enclosure:		Aluminum die casting, powder-coated

Electrical properties

Voltage range:	V	DC 21.6 ... 40
Max. Power consumption: (excl. heating):	VA	2
Max. Power consumption: (incl. heating):	VA	10
M-Bus-Voltage (Signal):	V/mA	max. 40 V non-polarized / max. 30 mA

Thermal, physical data

Ambient Temperature:	°C	-10 ... +50
Relative humidity:	%	≤ 95 (non-condensing)

Optional communication modules (input parameters)

Pre-alarm relay module:	V	DC 40 V; max. 10 mA
	V	DC 24 V; max. 20 mA

Sensor data

Resolution:	Pixels	32 x 31
Capture angle:	°	53 x 52
Reaction time:	s	< 1
Temporal resolution:	s	0.1 or 1 (depending on configuration)

Information regarding explosion protection

Explosion protection class:		Ex ta IIIC 105°C Da Certified according to ATEX and IECEx
Max. surface temperature:	°C	105
Device group:		II, category 1D
Type approval:		Certificate according to 2014/34/EU

Other

Bending radius connection cable	mm	> 91,5
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9.1 ID Plate

ADICOS Advanced Discovery System

MODEL	HOTSPOT-X20	SERIAL	G003224	YR	2019
ART-NR	410-2001-220	TEMP	-10°C ≤ Ta ≤ 50°C	IP	64
COM-NR	G003224	V _{DC} / VA	20 ... 40 / 10	I ₀	0,75A

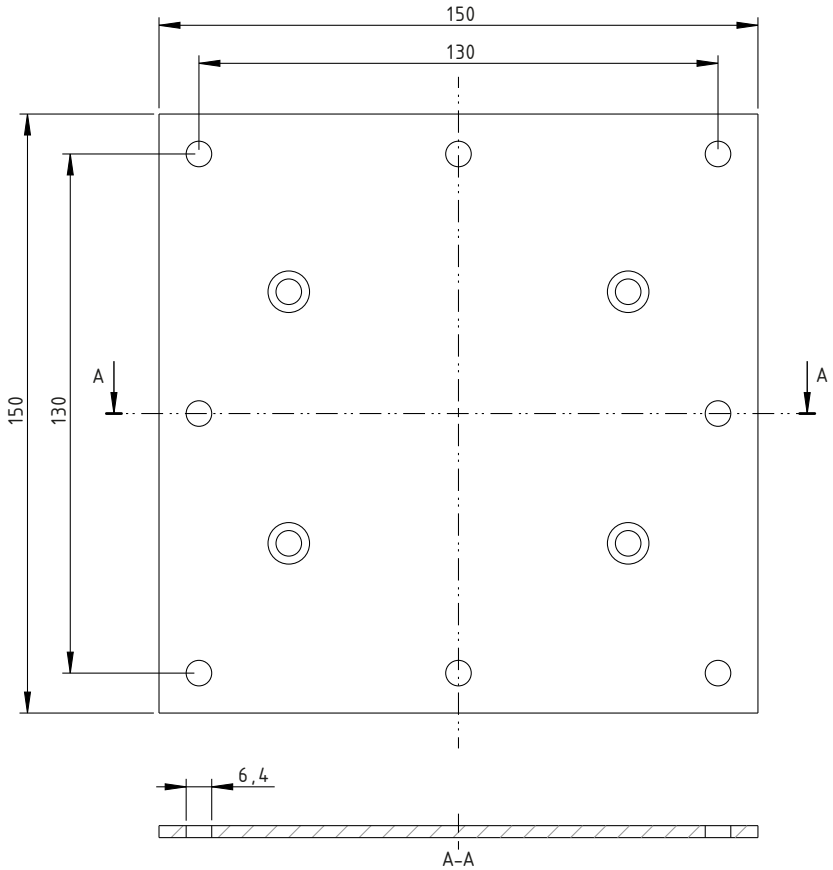
II 1D BVS 15 ATEX E 102
 Ex ta IIIC T105°C Da IECEX BVS 15.0089

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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:	Communication number (variable)	V _{DC} /VA:	Voltage range / maximum power consumption (heating incl.)	I ₀ :	Internal fusing (Short-circuit current)
CE marking		Information on explosion protection			

10 Appendix

10.1 ADICOS mounting plate



10.2 ADICOS Mounting Bracket

