**Operating manual**

# IR-Temperatur Detector

ADICOS HOTSPOT-X0 Interface-X1 - Operating manual  
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– *Translation* –

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## **Kurzbeschreibung**

The Advanced Discovery System (ADICOS) is used for early detection of fires in industrial environments. It is comprised of various separate detector units. With aid of suitable arrangement and parameterization the system meets a specified detection goal, without being susceptible to interference.

The detector units are connected using the ADICOS M-Bus to a central unit, which enables voltage supply and parameterization of every individual detector, and which stores all sensor data for statistical analyses.

The *ADICOS HOTSPOT-X0 Interface-X1* is an interface between the ADICOS HOTSPOT-X0 Sensor Unit and the fire control panel within potentially explosive atmospheres of zones 0, 1, and 2. Additionally it can be used as a connection and branching box (AAB) within these zones.

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## 1 About this manual

### 1.1 Objective

These instructions describe the requirements on installation, wiring, commissioning, and operation of the *ADICOS HOTSPOT-X0 Interface-X1*. After commissioning it is used as reference work in the case of faults.

It is 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. Here, the following labels are used.

#### Action objectives

Action objectives describe the result to be achieved by the subsequent instructions. Action objectives are presented in **bold font**.

#### Action instructions

Action instructions describe the activities to be performed in order to achieve the action objective previously mentioned. Action instructions are presented as follows.

- ▶ Individual action instruction
  
- 1 First of several sequential action instructions
- 2 Second of several sequential action instructions
- 3 etc.

#### Intermediate states

In the case of describable intermediate states or results, which are the result of action steps (e.g. displays, internal function steps, etc.), are presented as follows.

- ▷ Intermediate state

#### Warning signs

This manual uses the following information types.

**NOTE!**

This information type provides information directly important for further system operation.



**WARNING!**

This information type signals a danger that can lead to fatal or severe injuries.



**DANGER!**

This information type signals a danger that directly leads to fatal or severe injuries.



**DANGER!**

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

### 1.3 Abbreviations

This manual uses the following abbreviations.

Abbr.	Meaning
ADICOS	Advanced Discovery System
X0	Ex zone 0
X1	Ex zone 1

### 1.4 Storing the manual

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

## 2 Safety instructions

The ADICOS HOTSPOT-X0 Interface-X1 ensures 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.



### **WARNING!**

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

- **Read and follow this manual carefully!**

### 2.1 Intended use

The ADICOS HOTSPOT-X0 Interface-X1 is intended for use with the ADICOS HOTSPOT-X0 Sensor Unit and is designated for the detection of fire scenarios in potentially explosive atmospheres of zones 0, 1, and 2. It may be exclusively operated within ADICOS systems. In this context, the operating parameters described in Chap. 8, »Maintenance« 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 ADICOS HOTSPOT-X0 Interface-X1 installation, commissioning, maintenance, and test.

The ADICOS HOTSPOT-X0 Interface-X1 also meets the following standards and directives:

<b>Regulation</b>	<b>Description</b>
2014/34/EU	ATEX Product Directive
1999/92/EG	ATEX Operational Directive
DIN EN 60079-0:2012 IEC 60079-0:2011	Explosive atmospheres Equipment - General requirements
DIN EN 60079-1:2014 IEC 60079-1:2014	Explosive atmospheres Equipment protection by flameproof enclosures „d“
DIN EN 60079-11:2012 IEC 60079-11:2011	Explosive atmospheres Equipment protection by intrinsic safety "I"

### 2.3 Personnel qualification

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



**WARNING!**

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

### 2.4 Handling electrical voltage



**DANGER!**

The electronics of the ADICOS HOTSPOT-X0 Interface-X1 works with a voltage that can trigger an explosion in potentially explosive atmospheres.

- **De-energize the entire detector system and secure against unintentional reactivation for all wiring work!**

### 2.5 Modification



**WARNING!**

Any form of unauthorized modifications or extensions are expressly prohibited!

- **In case of doubt, contact the manufacturer!**

### 2.6 Accessories and spare parts



**WARNING!**

Only original spare parts and original accessories of the manufacturer may be used!



### 3 Accessories

**WARNING!**

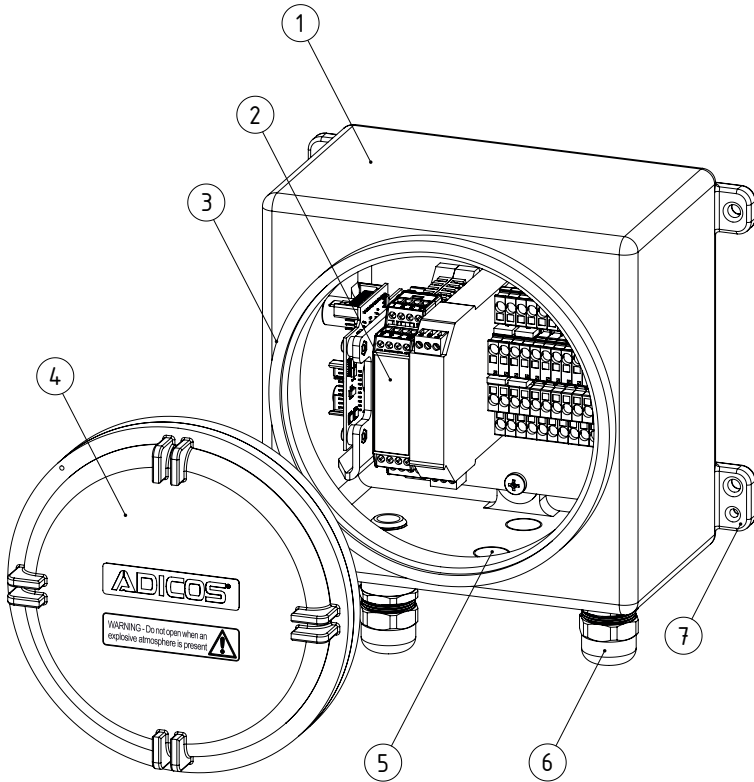
Only original accessories of the manufacturer may be used!

The following accessories are available for the ADICOS HOTSPOT-X0 Interface-X1:

Art no.	Description
<b>410-2401-310</b>	HOTSPOT-X0 Sensor Unit
<b>83-09-06052</b>	Cable gland for non-reinforced and non-sealed cables
<b>83-09-06053</b>	Cable gland for reinforced and non-sealed cables
<b>83-09-06050</b>	Cable gland for non-reinforced and sealed cables
<b>83-09-06051</b>	Cable gland for reinforced and sealed cables

## 4 Structure

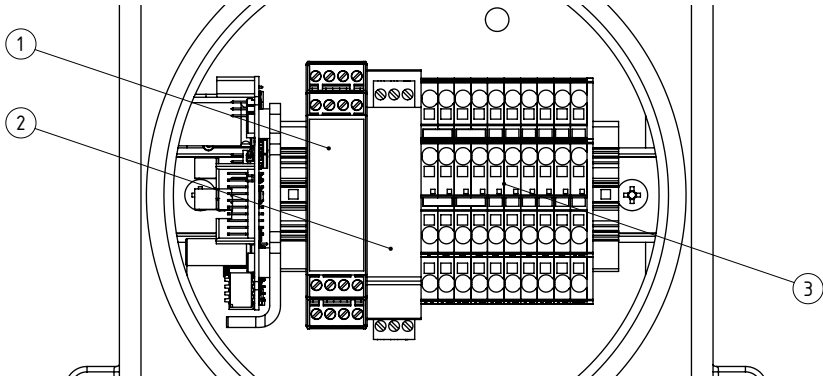
### 4.1 Overview



No.	Description
①	Flameproof enclosure
②	Top-hat rail with Ex barriers, connection terminals and interface circuit board
③	Thread for enclosure lid
④	Enclosure lid
⑤	Mounting place for additional cable glands
⑥	Cable gland (2x)
⑦	Mounting bracket (4x)

## 4.2 Connection terminals

The connection terminals are located inside the enclosure on the top-hat rail.



Nr.	Beschreibung
①	Ex barrier 1: sensor communication ( <i>intrinsically safe circuit 1</i> )
②	Ex barrier 2: sensor power supply ( <i>intrinsically safe circuit 2</i> )
③	System connection

### 4.2.1 Sensor communication (*intrinsically safe circuit 1*)

No.	Occupation
9	Cabinet shielding
10	Shield for intrinsically safe cable
11	-/-
12	-/-
13	Sensor communication B
14	Sensor communication A
15	-/-
16	-/-

### 4.2.2 Sensor power supply (*intrinsically safe circuit 2*)

No.	Occupation
1	Sensor power supply +
2	Sensor power supply -
3	-/-

**4.2.3 System connection terminal**

<b>No.</b>	<b>Occupation</b>
<b>1</b>	0 V
<b>2</b>	0 V
<b>3</b>	M-Bus A
<b>4</b>	M-Bus A
<b>5</b>	Alarm A
<b>6</b>	Fault A
<b>7</b>	LOOP A in
<b>8</b>	LOOP A out
<b>9</b>	Shield
<b>10</b>	Shield
<b>11</b>	+24 V
<b>12</b>	+24 V
<b>13</b>	M-Bus B
<b>14</b>	M-Bus B
<b>15</b>	Alarm B
<b>16</b>	Fault B
<b>17</b>	LOOP B in
<b>18</b>	LOOP B out
<b>19</b>	Shield
<b>20</b>	Shield

## 5 Installation



### WARNING!

Installation work may only be performed, if the potentially explosive area is released for work via a risk assessment.

- **De-energize the entire detector system and secure against unintentional reactivation for all wiring work!**

### 5.1 Selecting the mounting location



### WARNING!

In contrast to the ADICOS HOTSPOT-X0 Sensor Unit, the ADICOS HOTSPOT-X0 Interface-X1 is not approved for installation within Ex zone 0.

- **The device may only be installed outside of Ex zone 0!**

The following aspects have to be considered when choosing the mounting location.

- Install device easily accessible and in direct vicinity to the connected sensor – but outside of Ex zone 0.
- The mounting location must satisfy all environmental requirements specified in Chap. 10, »Specifications«.
- The mounting spot must be solid and free of vibrations.

### 5.2 Wall mounting

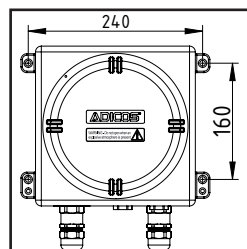


### WARNING!

Improper installation of the ADICOS AABs can lead to faults and failures of the detector system.

- **Mounting may only be performed by specialist personnel!**  
(→ Chap. 2.3, Personnel qualification)

- 1 At the mounting location drill four holes (Ø8) in a pattern of 240 x 160 mm
- 2 Press in suitable dowels
- 3 Using the mounting brackets firmly bolt the enclosure to the wall using four suitable screws and washers



## 6 Wiring



### WARNING!

Installation work may only be performed, if the potentially explosive area is released for work via a risk assessment.

- **De-energize the entire detector system and secure against unintentional reactivation for all wiring work!**
- **Wiring may only be performed by specialist personnel!**  
(→ Chap. 2.3)



### WARNING!

The ADICOS HOTSPOT-X0 Interface-X1 is subject to the protection principle and/or the ignition protection type **equipment protection by flameproof enclosures „d“**.

- **Only use approved cable glands!**
- **Firmly close enclosure lid after wiring!**

### 6.1 Wiring of ADICOS HOTSPOT-X0 Sensor Unit

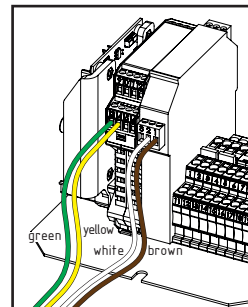


### WARNING!

The connection cable must be routed according to DIN EN 60079-14!

- **Only use approved, intrinsically safe connection cables provided by GTE!**
- **Observe minimum bending radius!**

- 1 Remove enclosure lid by rotating counter clockwise
- 2 Open cable gland
- 3 Insert sensor connection cable through cable gland
- 4 Connect green wire (*communication A*) to terminal 14 of Ex barrier 1 (*intrinsically safe circuit 1*)
- 5 Connect yellow wire (*communication B*) to terminal 13 of Ex barrier 1 (*intrinsically safe circuit 1*)
- 6 Connect brown wire (*power supply +*) to terminal 1 of Ex barrier 2 (*intrinsically safe circuit 2*)
- 7 Connect white wire (*power supply -*) to terminal 2 of Ex barrier 2 (*intrinsically safe circuit 2*)
- 8 Connect shield of sensor connection cable to terminal 3 of Ex barrier 2 (*intrinsically safe circuit 2*)
- 9 Close cable gland
- 10 Mount enclosure lid by rotating clockwise and pulling tight



## 6.2 Wiring of the fire detection system

Depending on the system configuration connect the fire detection system to terminals 1 ... 20 of the system connection terminal (→ Chap. 4.2.3).

Also consult **GTE-manual No. 430-2410-001** (ADICOS AAB Operating manual) and **GTE-manual No. 430-2410-004** (ADICOS AAB-L Operating manual).

## 7 Commissioning



### DANGER!

ADICOS systems work with electricity that may lead to system damage and fire in the case of improper installation.

- **Prior to switching on, check that all detectors are properly mounted and wired!**
- **Commissioning may only be performed by qualified specialist personnel!**



### DANGER!

The ADICOS HOTSPOT-X0 Interface-X1 is subject to the protection principle and/or the ignition protection type **equipment protection by flameproof enclosures „d“**.

- **Firmly close enclosure lid before commissioning!**



### NOTE!

The ADICOS HOTSPOT-X0 Interface-X1 is a passive component. A separate commissioning is not required.

- **Initialize the ADICOS fire detection system according to the operating manual of the installed central unit (ADICOS BMZ-30 / M-Busmaster)!**

## 8 Maintenance

The ADICOS HOTSPOT-X0 Interface-X1 does not require maintenance.

## 9 Disposal

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





## 10 Specifications

<b>General information</b>		
Enclosure dimensions:	mm	220 x 220 x 180 (L x W x H)
Overall dimensions:	mm	270 x 264 x 180 (L x W x H)
Enclosure material:		Aluminium
Weight:	kg	8
Cable bending radius:	mm	> 38
Protection class:	IP	66
<b>Information regarding explosion protection</b>		
Explosion protection class:		II 2(1)G Ex db [ia Ga] IIC T4 Gb
Temperature class:		T4
Device group:		II, category 2G
Type approval:		Certificate per 2014/34/EU
IECEX certificate:		IECEX KIWA 17.0007X
ATEX certificate:		KIWA 17ATEX0018 X
<b>Electrical properties</b>		
$U_{o[1,2]}$	V	$\geq 17$
$I_{o[1,2]}$	mA	$\geq 271$
$P_{o[1,2]}$	W	$\geq 1,152$
$U_{o[13,14]}$	V	$\geq 3,7$
$I_{o[13,14]}$	mA	$\geq 225$
$P_{o[13,14]}$	mW	$\geq 206$
$U_{l[13,14]}$	V	$\leq 30$
$I_{l[13,14]}$	mA	$\leq 282$
$C_{o[1,2]}$	$\mu\text{F}$	0,375
$L_{o[1,2]}$	mH	0,48
$L_{o}/R_{o[1,2]}$	$\mu\text{H}/\Omega$	30
$C_{o[13,14]}$	$\mu\text{F}$	100
$L_{o[13,14]}$	mH	0,7
$L_{o}/R_{o[13,14]}$	$\mu\text{H}/\Omega$	173

