ADICOS®

Advanced Discovery System

Industrial Fire Detection

ADICOS®

Industrial fire alarm systems redefined.

While fire alarm systems for standard applications, e.g. in offices and residential buildings, provide an enormous variety of solutions, industrial systems often give conventional fire detectors insoluble problems. Unfavorable environmental conditions, such as dust and moisture, can cause false alarms or even damage and failures.

At the same time, the risk of fire in industrial plants is often extremely high. False alarms can also cause enormous costs if they cause a plant to come to an unnecessary standstill.

20 years ago, GTE Industrieelektronik GmbH had already accepted the new challenges of fire detection in an industrial environment and developed the Advanced Discovery System (ADICOS).

The system comprises a series of detectors for reliable and interference-sensitive fire detection in industrial plants. Typical applications include power stations, recycling plants, steel companies, mills, silos, storage, transport and processing facilities for coal, wood chips, biomass, secondary fuels, etc.

Power Plants

Steelworks

Recycling

Conveyors

Processing

Storage

Product overview - detectors

Industrial Fire Gas Detectors

GSME fire gas detectors capture the concentration of fire-critical gases through integrated semiconductor gas sensors. Control and evaluation of the sensors are fully parameterizable, which means that the detectors can be used in almost any environment. Smoldering fires can be detected early and reliably.

GSME-M4

Due to the innovative sinter metal filter technology, the GSME-M4 detectors are protected against the penetration of dusts and dirt. The gases to be detected, on the other hand, diffuse unimpeded through the filter barrier.

Even in Potentially Explosive Atmospheres

The detectors of the GSME and HOTSPOT product lines are also available as variants which are either approved by the manufacturer's declaration for use in atmospheres subject to gas or dust explosions or certified in accordance with the ATEX directive and IECEx. Their robust design and small size make the detectors ideal for use in difficult assembly environments.

GSME-X22 and GSME-X20

GSME-X22 and GSME-X20 are approved for the ATEX zone 22, respectively 20 to 22 and are factory fitted with permanently installed spray protection. The GSME-X20 is also available as an extended version for the ATEX zone 2.

Industrial Infrared Heat Detectors

The detectors of the HOTSPOT product series are equipped with thermal imaging cameras and detect all kinds of smoldering and open fires by infrared measurement technology and intelligent signal evaluation, even in the initial phase. The short response time of 100 milliseconds allows the monitoring of conveyor belts or other conveyor lines for moving pockets of embers.

HOTSPOT-1000

The integrated thermal imaging detector comprises more than 1000 heat-sensitive pixels whose alarm thresholds can be freely parameterized. Its robust design, as well as its standardized, integrated seal air connection, protects the HOTSPOT from dust, dirt and moisture.

HOTSPOT-X0

The HOTSPOT-X0 is approved for the potentially explosive gas atmospheres of zones 0 to 2. The innovative thermal camera is used for early fire detection in chemical plants and gas-fired power plants as well as in all other areas in which gas-explosive atmospheres can occur.

HOTSPOT-X22 and HOTSPOT-X20

HOTSPOT-X22 and HOTSPOT X-20 are approved for ATEX zones 22, respectively for 20 to 22 and are equipped with an integrated purge air connection.


GSME-M4
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GSME-M4

The new generation of fire gas detectors

GSME fire gas detectors are the spearhead of the Advanced Discovery System. They can already detect open and hidden smoldering fires within their initial phase. The new generation of the GSME-M4 comprises four parameterisable semiconductor gas sensors that are used for monitoring and evaluating the concentration and behaviour of fire-indicating gases by applying the multi-criteria method. Their robust design protects them against damage due to dust, dirt, and moisture.

By means of the multi-criteria evaluation, any interference caused by the natural outgassing of conveyed materials or exhaust gas from mine trucks can intentionally be suppressed. For this purpose, an emission spectrum is first recorded during the commissioning. This incorporates the usual on-site exhaust pollution in the evaluation process of the internal detector measurements. A service PC provides the possibility to call up sensor data of each detector via the ADICOS M-bus using the PC software ADICOS Manager and to display it separately. It is also possible to specify the parameters at any time.

Considering the air flow conditions, GSMEs can be used in nearly all internal plant area. For instance, they are outstandingly suitable for use along cased conveyor belt lines, within storage bunkers, or in the head area of silos.

GSME-M4

Gas sensors:
CO | H_2 | HC | NO_x

Three basic parameter sets are available ex-works: Standard, Extended and Robust.

GSME-M4 detectors are generally equipped with an integrated device heating feature that can be switched on to prevent condensation. For enhanced moisture protection of the GSME-M4, the retrofittable GSME spray protection made of stainless steel is available.


GSMEX20
DICOS

GSME-X20

Fire gas detector for ex-zone 20 to 22

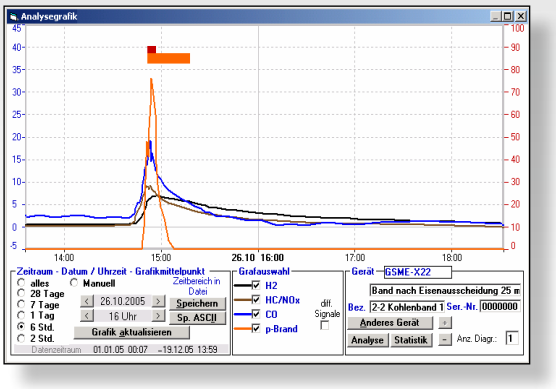
In many industrial plants, specific areas are subject to the ATEX directive 1999/92/EC. Within these areas where there is a risk of explosion, electrical devices are only allowed to be operated with the respective approval. This also applies to fire alarm systems. For this reason, GTE also offers the GSME detectors as a type-tested variant, as per ATEX directive 2014/34/EU and IECEx. The GSME-X20 offers the same functionality as a standard GSME-M4, however it is approved for use in the potentially explosive dust atmospheres of zones 20 to 22. Furthermore, a variant of the detector is available, which additionally allows use in ATEX Zone 2.


GSME-X22
DICOS
3 2

GSME-X22

Fire gas detector for ex-zone 22

We are offering the fire gas detector GSME-X22 as an economic compromise solution between the GSME-M4 without explosion protection approval and the type-tested GSME-X20. On the basis of a self-test, together with the manufacturer's declaration, this detector is approved in the potentially explosive dust atmospheres of zone 22.




HOTSPOT
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HOTSPOT-1000

Intelligent thermographic camera

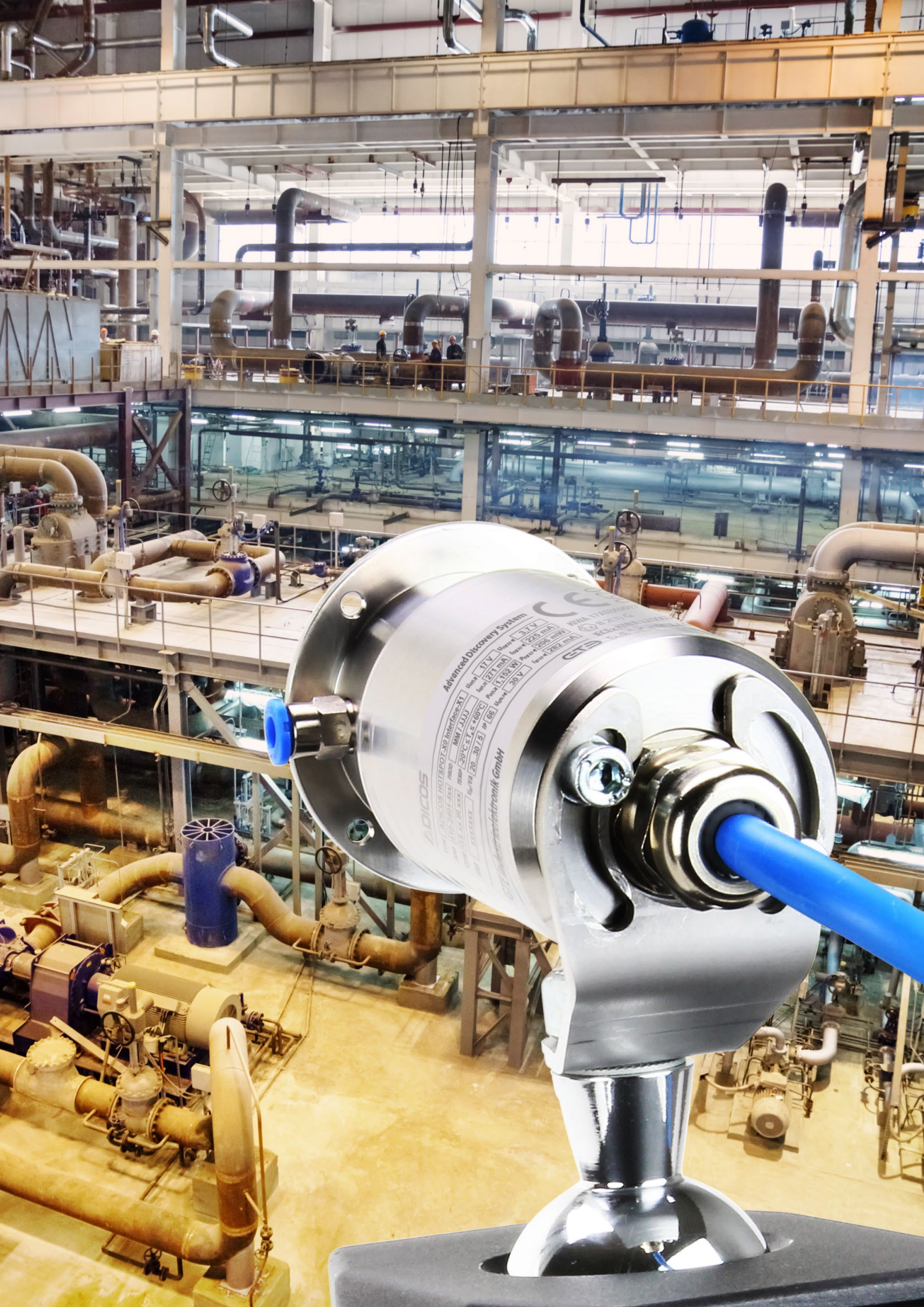
The ADICOS HOTSPOT-1000 is an IR-fire detector with infrared-measuring devices and intelligent signal evaluation for the fast detection of all kinds of smoldering fires, also within their initial phase. The integrated thermal imaging detector comprises 1000 heat-sensitive pixels whose alarm thresholds can be freely parameterized. In this way, the HOTSPOT-1000 can be optimally adapted for the respective application environment and the detection target to be fulfilled.

The short response time of 100 milliseconds allows the monitoring of conveyor belts or other conveyor lines for moving pockets of embers. Furthermore, overheated drives, shaft bearings or rollers can also be detected. The HOTSPOT-1000 can be used in addition to the ADICOS-GSME fire gas detectors, as well as within silos for monitoring the bulk material stored.

Its robust design, as well as its standardized, integrated purge air connection, protects the HOTSPOT-1000 from dust, dirt and moisture. In addition to the infrared sensor, each HOTSPOT-1000 includes a conventional camera for alignment and orientation. For easy assembly in the desired angular position, a robust mounting foot with ball joint is available.

HOTSPOT-1000

Resolution: 32 x 31
Viewing angle: 53° x 52°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HOTSPOT-X0

The thermographic camera for ex-zones 0 to 2

The HOTSPOT-X0 is the first IR-fire detector that has been approved worldwide for the potentially explosive gas atmospheres of zones 0 to 2. The innovative thermal camera allows for early fire detection in chemical parks and gas-fired power stations, as well as in all other areas in which potentially explosive gas atmospheres can occur. The Hotspot-X0 detects excess temperatures and flames and supports several alarm zones by means of independent alarm parameters - this ensures the best possible adaptation of the detectors to the particular application. Its compact design allows its use also within confined spaces. HOTSPOT-X0 thermal cameras can directly be integrated in the fire alarm bus of central fire alarm systems.

HOTSPOT-X20

Thermographic camera for ex-zone 20 to 22

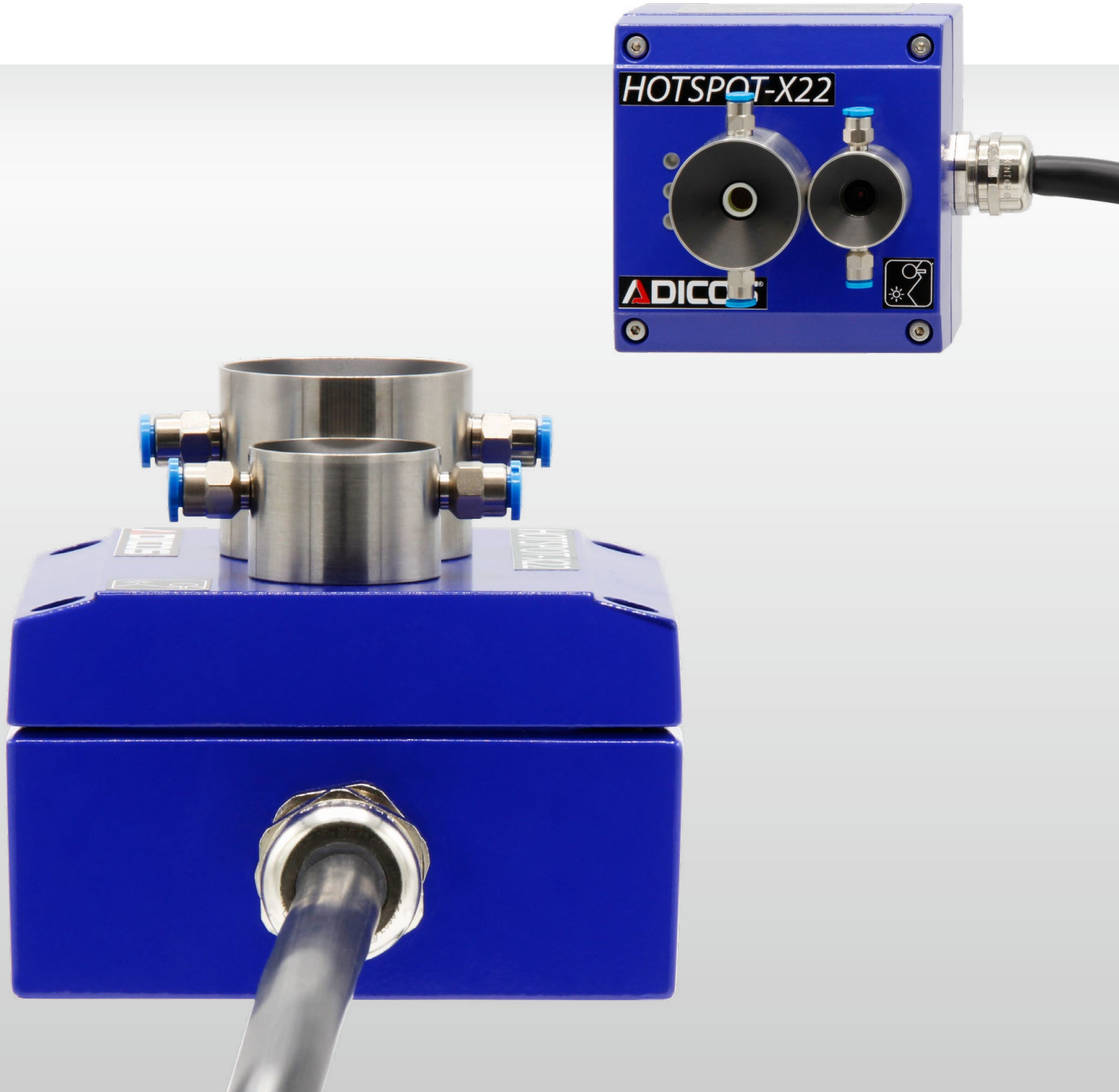
The IR fire detector HOTSPOT-X20 is used in potentially explosive dust atmospheres. The detector is type-approved by a notified body in accordance with both the ATEX Directive and IECEx. The HOTSPOT-X20 has a resolution of 1000 heat-sensitive pixels and an integrated purge air connection, which protects the optics of the detector from contamination. Instead of the conventional camera, the HOTSPOT-X20 is equipped with, a flange for flush mounting of housings of every kind.

HOTSPOT-X22

Thermographic camera for ex-zone 22

The IR-fire detector HOTSPOT-X22 is for use in the potentially explosive dust atmospheres, such as in coal-fired power plants, and is approved by a self-test with manufacturer's declaration for use in Zone 22 explosive dust atmospheres.

The structure of the HOTSPOT-X22 is based on the HOTSPOT-1000 and offers the same functionality. The detector also has a conventional camera for alignment and orientation.

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Systems technology

System and connection technology

The Advanced Discovery System is based on a user-friendly field bus, the ADICOS M-bus, that allows you to bring together data communication and power supply for all types of devices in one cable. The easy assembly and expansion possibilities make this system very attractive.

We are offering the following additional components:

Control panel | *BMZ-30*

The control panel BMZ-30 is a compact central unit that communicates with all ADICOS warning devices via the M-bus and displays and evaluates their statuses. It allows the grouping of detectors and the establishment of alarm rules. From there, multiple alarms can be sent in accordance with the pre-set parameters and control devices can be activated. In combination with a service PC, it also ensures the uninterrupted recording of all system events. ADICOS BMZ-30 is modularly expandable through an Ethernet interface.

M-BUSMASTER | *XF* | *S*

The M-bus is a master-slave bus system. In addition to the detectors that work as slaves, it needs a master unit, the M-BUSMASTER. It is not only able to supply a small number of detectors with the required operating voltage, but it also controls the whole data communication network. Furthermore, it allows access to a service PC via an RS-232 interface. The M-BUSMASTER XF can manage the communication with up to 250 detectors. In doing so, due to its protective class IP 65, the M-BUSMASTER XF is especially suitable for unfavorable environments and can be further extended by an Ethernet module. The M-BUSMASTER S is a practical tool for service use and equipped with a USB interface.

M-BUSMASTER XF

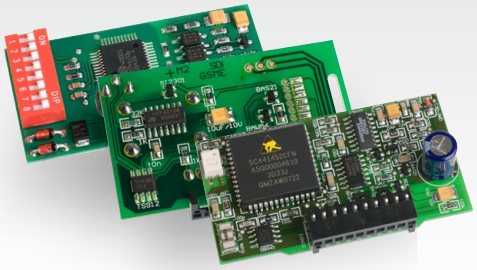
M-BUSMASTER S

Connection and junction box | *AAB* | *AAB-L/-XL* | *AAB-X22*

The AAB connection and junction box allows the easy installation of the ADICOS detectors. All supply and data lines can be branched through this from the main line to the respective detectors. Due to the ergonomic design of the terminal strips and the pre-printed designations, quick and faultless wiring is ensured. The stainless steel variants AAB-L and AAB-XL provide additional wiring variations. The AAB-X22 is approved for ex-zone 22.

POWER SUPPLY UNIT | NT V40-A3

If the power output of the M-BUSMASTER is not enough for supplying all the connected detectors, an additional external power supply unit will be required. The short-circuit-proof NT V40-A3 supplies a maximum current of 3 A at 40 V.



COM-MODULES

For integrating the ADICOS detectors into an existing fire protection system, various extension modules are available. For example, the GSME and HOTSPOT can be connected, to central fire alarm systems from Siemens and Bosch using these plug-in boards.

HOTSPOT tester HTL-2

The ADICOS HTL-2 is a mobile device for functional testing of all HOTSPOT infrared fire detectors from the Advanced Discovery System. It consists of a robust plastic housing with integrated heating plate, which is regulated during operation to a temperature of 100°C. To test detectors installed at high altitudes, the HTL-2 can be extended with a telescopic extension rod up to 5 meters in length.

GSME tester GTL-3

The test device GTL-3 is used for functional testing of all GSME fire gas detectors. The device produces a typical fire gas mixture in sufficient concentration by safely burning off a smoldering rod.

Connecting cable

All ADICOS detectors that do not have an approval for hazardous areas are equipped with an industrial bayonet coupling. Therefore a ready-made standard cable can be used when installing the system. This shielded connecting cable is fitted on one side with the ADICOS bayonet plug and is available ex-works in different lengths.

Digital version:

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