Instruction Manual

Human Detector *Flex* is a product of the

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Introduction

Security and surveillance technology
for museums, exhibitions, private collections and luxury goods trade

Thank you for choosing the **Human Detector** *Flex* alarm system.

A powerful, compact and quick-to-install security and surveillance system, it supports you in protecting your exhibits and valuables. Whether paintings, sculptures or automobiles, the **Human Detector** *Flex* system features a wide range of applications.

Sensors and alarm modules are available for almost every task. These are extremely small and can be operated with inexpensive lithium batteries, which last for up to 10 years.

(HDF - **H**uman Detector *Flex*)

HDF-3D PROTECT	The **HDF-3D PROTECT** module detects the slightest vibrations (structure-borne sound) and movements. This provides for the effective protection of showcases, pedestals, technical exhibits and vehicles.
HDF-TOUCH	Approaching and touching objects can be easily detected with the **HDF-TOUCH** module. The system is ideal for securing metallic objects, but can also be used for other purposes.
HDF-HANG	**HDF-HANG** secures pictures and hanging objects on gallery rails.
HDF-OPTICAL	Pictures, paintings and other hanging objects can be secured sustainably, simply and contact-free with **HDF-OPTICAL**.
HDF-EXTERN	External sensors with an alarm output (NO or NC) can be connected directly to the **HDF-EXTERN** module. This allows the **Human Detector** *Flex* System to be extended as required.
HDF-WIRE	Securing with tear-off wires is in many cases the cheapest and quickest way to secure "small items" against theft. The **HDF-WIRE** module supports up to two signalling circuits.
HDF-DOOR	**HDF-DOOR** secures doors, flaps and inspection hatches.
HDF-SHOCK	The **HDF-SHOCK** module detects heavy blows, position changes and vibrations.
HDF-REMOTE	The **HDF-REMOTE** panic button allows for alarm messages to be easily and invisibly sent by supervisors.

All alarm modules, with the exception of the **HDF-REMOTE** panic button, can additionally be operated with an external power supply unit. The connection to the alarm centres (**HDF-BUZZER** and **HDF-SPEECH**) and the **HDF-AMD** alarm management system is wireless via radio. The communication that takes place in the 868 MHz range uses a special modulation method that easily penetrates solid walls and large buildings. The ranges achieved here are often several times greater than those that can be achieved with conventional systems.

The HDF-BUZZER and HDF-SPEECH alarm centres

Two systems with different extension levels are available with the **HDF-BUZZER** and **HDF-SPEECH** alarm centres.

The basic system **HDF-BUZZER** enables the output of a loud alarm via a built-in piezo siren (buzzer). In addition, three potential-free relay outputs are available. These can be individually controlled by the alarm modules. Alarm messages are acknowledged, and the system is armed and disarmed via an external input using a key switch.

The **HDF-SPEECH** alarm centre also has a voice output. Voice and sound messages are stored as .mps3 files and used as alarm messages.

The **HDF-AMD** unit (**AMD** = **A**larm **M**anagement **D**evice) enables targeted forwarding of alarm messages to IP-based control centers according to **SIA-DC09** standard and Ademco CID encoding. A precise distinction is made here as to who is responsible for which alarm. Likewise, the **HDF-AMD** in combination with the **HDF-ANTIJAM** monitors the radio network for interfering signals. The **HDF-AMD** is an open system. Future projects - such as the transmission of measurement data (temperature, humidity, etc.), but also the connection to video control centres - can be implemented.

Safety Instructions

The **Human Detector** *Flex* systems are designed and manufactured according to the latest quality and safety standards. The following installation and usage instructions must be adhered to:

1. Get information about safety instructions

Read the entire instruction manual before operating the devices. Keep the instruction manual in a safe place. Observe all safety instructions and notes in this instruction manual.

2. Penetration of objects or liquids

Avoid inserting or penetrating objects or liquids into the housings of the **Human Detector** *Flex* systems. Should this nevertheless occur, immediately disconnect the unit from the power supply (mains adapter or batteries) and send the unit to an authorised dealer or to the manufacturer for inspection.

3. High temperatures

Keep the systems away from fire, heaters or other heat-producing devices. Never install the **Human Detector** *Flex* sensors and devices in or on highly flammable objects such as fuel tanks.

4. Climate

The units have been designed for use at temperatures between -10°C to +50°C. Operating the devices outside this temperature range must be avoided and cause permanent damage.

5. Cleaning

Do not use aggressive detergents or apply excessive moisture when cleaning the **Human Detector** *Flex* sensors. Follow the recommendations for the individual products.

6. Power supply

Do not connect the **Human Detector** *Flex* units directly to a 230 volt mains supply. Only use a suitable power supply (as included in the scope of delivery) or battery (type CR2450 or equivalent).

Important safety note!

The installation, programming and set-up must be carried out by trained and qualified personnel. Subsequent changes during normal operation (such as the relocation of **Human Detector** *Flex* modules) can be carried out by trained staff (not qualified personnel). However, the above-mentioned safety instructions and general rules of electrical engineering must be observed. If unsure, ask your dealer or a qualified electrician.

heddier electronic GmbH does not guarantee or assume any responsibility for installations carried out by third parties. This also applies if personnel was trained or in contact beforehand.

Human Detector Flex Alarm Centers and Management

The **Human Detector** *Flex* alarm system has a larger number of sensors. These detect threats and monitor a wide variety of situations. In the event of an alarm, they send a coded radio signal. To ensure that this is noticed by the operator, various alarm control centers and an alarm management system are available.

In the following chapters, the operation of the various systems is described.

HDF-BUZZER	Alarm centre with piezo siren and three switching outputs
HDF-SPEECH	Alarm centre with piezo siren, three switching outputs and voice output
HDF-AMD	Alarm-Management-Device
HDF-ANTIJAM	Jammer detection system

HDF-AMD

Use and Operation Principle

The **Human Detector** *Flex* Alarm Management System **HDF-AMD** was developed for the use in museums and exhibitions. Due to its functionality, however, it can also be used for other protection tasks. The compact housing contains a powerful transmitter and receiver for the frequency range of 868 MHz. A transmitter module for the transmission of IoT data, for example, is also integrated. A sufficiently high reception and transmission strength is achieved by three external ¼ lambda antennas. These can be detached and bent. If desired, they can be placed remotely from the **HDF-AMD** or replaced by another antenna.

The **HDF-AMD** monitors all radio traffic and evaluates the messages from all sensors and linked alarm centres. A protection system against jammers can also be added. The obtained data can be encrypted on request and sent to a local or remote control center. The internationally standardized **SIA-DC09** protocol ensures a high compatibility to existing systems and security providers. Thus, the **HDF-AMD** system can be easily integrated into existing structures and reporting procedures or upgrade them.

The **HDF-AMD** is an additional central unit that can be added to existing installations at any time. In **PROFI Mode** the complete functionality of the original installation is retained. It can be easily integrated into a wide variety of exhibition situations due to its compact design. The long range of the radio network allows a largely free choice of location.

Special operation in "isolated" museums

Larger exhibition halls often have a self-sufficient security infrastructure. In order to ward off a possible "attack" all functionalities of the security technology in the building are mapped. This means, for example, securing the external power supply with your own emergency power supply. Reporting channels to the police and fire brigade are realised via multiple pathways (radio and wired). With alarm technology people tend to move towards installing all functionalities in the house. Trained security staff, therefore, is in the building during the day and at night. The control centre is permanently staffed with essential equipment in a secure room. The control centre computer or server has no interface to the outside world and is therefore relatively immune to attacks. As the control centres are located in a secured building area, an assault with the threat of violence is fairly difficult to execute.

Museum
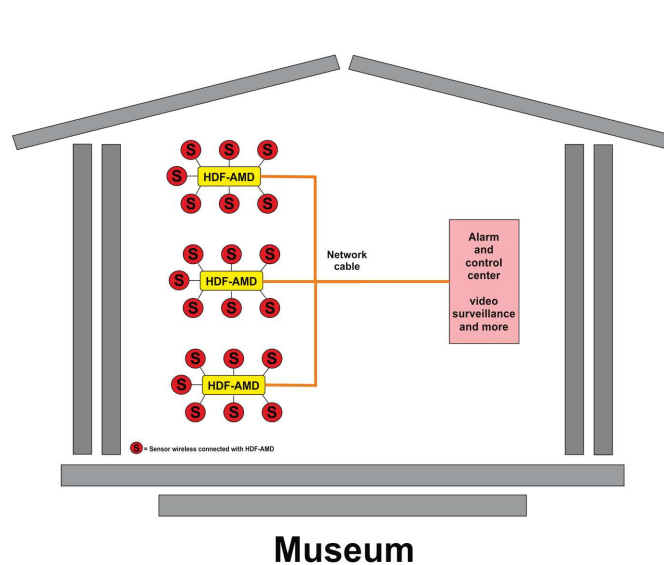
The **Human Detector** *Flex* can be integrated into a safety scenario of that kind. The integration is also possible at a later stage.

The following procedure is then required:

- Please contact our sales department. A confidentiality agreement must be signed first by both parties.

- A required number of **HDF-AMD** alarm management systems are installed in your building. These set up radio cells that are connected via network cable to the control centre. All alarms detected by the **HDF-AMD** system are immediately forwarded to the control center.

- The exact procedure must be coordinated with your control centre provider. **SIA-DC09** can be used.
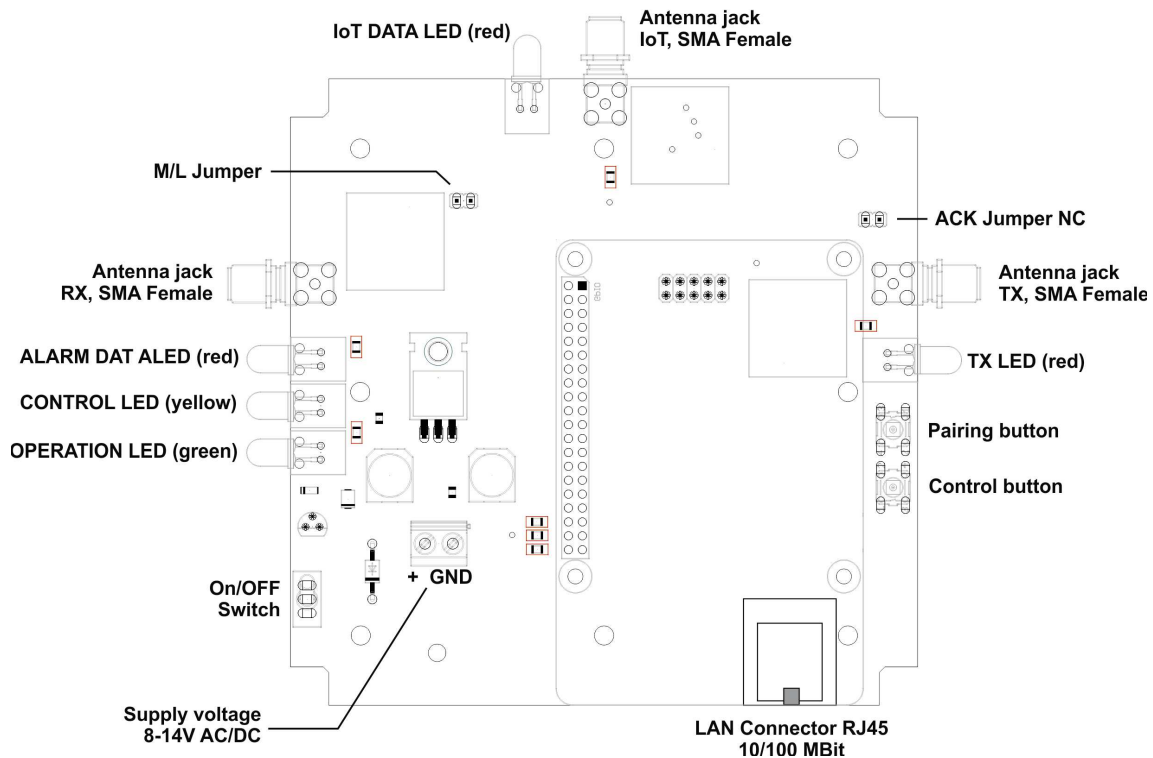
We would be happy to provide further details about the "isolated" installation of our security technology.

Please contact our sales department.

Design and Connections

The electronics of the **H**uman Detector *Flex* alarm management system **HDF-AMD** are located on a printed circuit board inside the housing. Open the housing cover by removing the four locking screws. **Do not remove the four screws that connect the circuit board to the base plate of the housing.** There are no connecting elements or controls below the circuit board that are necessary for operating the sensor electronics. If you have opened the housing, please handle the sensor electronics with extreme care.

HDF-AMD

IoT DATA LED (red)

Antenna jack
IoT, SMA Female

M/L Jumper

ACK Jumper NC

Antenna jack
RX, SMA Female

Antenna jack
TX, SMA Female

ALARM DAT ALED (red)

TX LED (red)

CONTROL LED (yellow)

Pairing button

OPERATION LED (green)

Control button

On/OFF
Switch

+ GND

Supply voltage
8-14V AC/DC

LAN Connector RJ45
10/100 MBit

Terminal Operating Voltage	**Operating voltage 8-14 V, AC or DC, current 2000 mA min.** Ensure correct polarity. Reverse polarity protection is provided. **Only use rigid connection cables or flexible cables with wire end ferrules and a cross-section of 0.75 mm². The use of cables with larger cross-sections may cause damage to the terminal**.
On/Off switch	Slide switch for switching on and off Use a pointed object (e.g. a biro) to operate the switch.
RJ45 LAN connection 10/100 MBit	LAN connection with internet access
ALARM DATA LED	Red LED illuminates when alarm data is received
OPERATION LED	Green LED illuminates when the alarm management system **HDF-AMD** is switched on
CONTROL LED	Yellow LED illuminates when data is being transmitted. **The HDF-AMD should not be switched off or disconnected from the Internet, if the yellow CONTROL LED is illuminated. Data may be lost otherwise.**
TRANSMITTING LED	Red LED indicates that data is being transmitted.
IoT DATA LED	Red LED indicates when IoT data is being transmitted.
Control button	Briefly pressing the control button once switches the **HDF-AMD** to configuration mode. The system can now be programmed with the **HDF-CONFIGURATOR** software. If the control button was pressed in error, the **HDF-AMD** can be returned to normal operation by switching it off and on again.
Pairing button	No function
SMA antenna socket IoT, SMA Female	Connection for 1/4 lambda antenna for sending control data
SMA antenna socket RX, SMA Female	Connection for 1/4 lambda antenna for receiving alarm data
SMA antenna socket	Connection for 1/4 lambda antenna for transmission of IoT data

IoT, SMA Female	
TX Jumper NO	No function (jumper is open - NO)
ACK Jumper NC	No function (jumper is closed - NC)

Important note:

The **HDF-AMD** alarm management unit is able to monitor the presence and availability of the alarm modules. This applies to all alarm modules with the exception of the **HDF-REMOTE** panic transmitter. The alarm modules regularly send vital signs **(Heartbeats)** for monitoring purposes. If the vital signs are **not** received by the appropriate **HDF-AMD**, a Heartbeat Alarm is issued to the connected smartphones. The name of the affected alarm module is registered in the **HDF-SUPERVISOR** App.

Mounting Location and Installation

The power and flexibility of the **Human Detector** **Flex** alarm system lies in its wireless radio connection. Due to the transmission frequency and protocol, a high level of security is ensured. The modulation process contributes to an increased range compared to products from various competitors. To ensure unrestricted wireless radio operation, a few basic rules should be observed:

- Do not install the alarm control panels and the alarm management systems directly on metal surfaces.

- If this is not possible, a minimum distance of approx. 40 cm should be kept from the metal surface. This is important to ensure proper radiation of the high frequency.

- Choose the installation position of the alarm control panels and the alarm management system to avoid the presence of large metal parts between these and the sensor modules, if possible. The further away the sensor modules are, the more critical large metal parts become to the path of transmission.

- Choose the installation location to provide access to the alarm control panels and alarm management systems.

- **Under no circumstances may unauthorised persons have free access to the alarm control centres and alarm management systems. This also applies to any connected cables.**

Choosing the location for installation

When choosing the location for installation of the **HDF-AMD** alarm management system, ensure to find a central location that can be easily reached by all alarm sensors and control panels via radio. In contrast to the installation of the **HDF-BUZZER** and **HDF-SPEECH** alarm control panels, the output of alarm messages does not need to be considered. The **HDF-AMD** forwards alarm messages without issuing alarm messages itself.

After a suitable position has been found, provide an operational power supply line and a LAN-connection. Ensure, therefore, that the supply lines are installed in such a way that they cannot be tempered with, dismantled or get damaged by others.

The ideal position normally is:

- Elevated and not accessible without a ladder.
- Elevated and exposed, so that it can be easily reached by all alarm sensors and centres via radio.
- Hidden in furniture or behind panels so that it can not be tampered with or get damaged.

Note:

Further alarm management systems can be installed, if you do not cover the entire secured area with an **HDF-AMD**. The configuration of the additional **HDF-AMD** is done with the help of the **HDF-CONFIGURATOR** software. The aim is to achieve complete coverage of the monitored area by using several **HDF-AMD** management systems.

Aligning the antennas with the HDF-AMD

For maximum range the three 1/4 lambda antenna should be aligned vertically. This means that the antennas point vertically up or down. Deviating from this is possible, but results in a reduction of reception and transmission quality.

Connecting the HDF-AMD to the internet

The **HDF-AMD** requires a failsafe internet connection when reporting to an external control center. For recommendations on how to accomplish a failsafe internet connection, please contact your internet service provider to get a solution customly made for your needs.

If you are having trouble communicating with an external control center, please compare your firewall rules with the settings in the **HDF-CONFIGURATOR** software to ensure a smooth communication.

End of installation test

Perform a function test after completing all assembly work. The test can only be carried out once the **HDF-AMD** has been set up with the **HDF-CONFIGURATOR** software and the **HDF-MESSAGE** or **HDF-SUPERVISOR** app has been installed on an Android smartphone.

Proceed as follows for the test: Switch on the alarm management system **HDF-AMD** and trigger an alarm at a linked sensor module. If this is not possible at this time due to the installation of the sensor module, press the test button on the sensor module. The **HDF-AMD** should transmit the alarm to a linked terminal.

Check the complete set-up again, if the alarm is not forwarded properly.

Possible causes for faults are:

- The **HDF-AMD** alarm management system is not switched on.
- The power supply of the **HDF-AMD** is faulty.
- The sensor module is not switched on.
- The sensor module was not correctly registered with the **HDF-CONFIGURATOR** software.
- The **HDF-MESSAGE** or **HDF-SUPERVISOR** app on the Android end device is not configured correctly.

Note!

Due to the complexity of the __initial installation__ of a **Human Detector Flex** system in **PROFI mode** , we recommend that this work be carried out by qualified personnel. **heddier electronic** offers training for technicians and museum staff. Our sales partners and we are happy to provide support with the installation.

System Login

A login of the **HDF-AMD** is not necessary. The registration takes place during the setup by the **HDF-CONFIGURATOR** software.

Maintenance and Care

The **Human Detector** *Flex* Alarm Management System **HDF-AMD** requires no special maintenance and care. However, as these are safety-relevant systems, regular checks are recommended. The following functions should be checked:

Regular testing of HDF-AMD

It is recommended to check the functionality of the system at regular intervals. To do so, trigger an alarm at one or more sensor modules and check whether they are sent to the corresponding terminal devices in accordance with the setting. Coordinate the test frequency with the security plan of your institution. **At least one test should be carried out per year. Record the test and archive the documentation.**

The tasks listed below must be carried out:

- Trigger one or more alarms and check, if they reach the required terminal devices.

- Check that the **HDF-AMD** is properly mounted.

- Check that the **HDF-AMD** shows no sign of external damage.

- Check that the three external antennas are correctly mounted and adjusted.

- Check that no shielding objects have been retrofitted near the **HDF-AMD**.

- Check the network connection and the voltage supply of the **HDF-AMD**.

It is important that the inspection work is carried out diligently by instructed personnel. We can carry out this work on request.

Please contact our sales department should you be interested in this service.

Cleaning the HDF-AMD housing

Normally, it is not necessary to clean the housing. Should it become necessary, we recommend the use of a mild glass cleaner.

Please proceed as follows:

- Take a sufficiently large piece of kitchen paper and spray the glass cleaner onto the paper once or max. twice.

- Spread the cleaning liquid on the kitchen paper and carefully wipe the **HDF-AMD** surface with the paper.

- Then check the function of the **HDF-AMD** by triggering a test alarm.

Note!

Do not use solvents to clean the housing. Do not spray the housing directly. Moisture must not penetrate the housing. In case of moisture penetration dry the housing and check its correct function.

In case of dirt or moisture in the HDF-AMD housing and its function is permanently compromised, please contact our technical customer service immediately.

Terms of Warranty

The warranty period is 2 years from the date of purchase shown on the invoice. Different warranty conditions for commercial customers result from the General Terms and Conditions of **heddier electronic GmbH**. In the event of a warranty claim, the user is entitled to send the unit to their authorised dealer for repair. For each repair within the warranty period, a proof of purchase needs to be presented to the authorised dealer. The services included in the warranty cover all spare parts and labour costs necessary for repair.

Improper use or faulty installations are not covered by the terms of this warranty. In addition, technical modifications to the unit by unauthorised persons will render any claim invalid. The manufacturer is not liable for damage caused during transport to the service workshop.

The statutory warranty rules are not affected by the guarantee scheme. No guarantee or warranty claim exists for units where the serial number labels have been removed or the prescribed conditions of use and operation have been violated.

Procedure in Case of Warranty Repair

Defective **Human Detector** *Flex* components should be delivered to the authorised dealer in the original box or equivalent packaging. Attach a copy of the purchase invoice. No responsibility can be assumed for safe delivery by the carrier. It is therefore recommended to take insurance against loss, theft and damage during transit.

The **Human Detector** *Flex* components supplied cannot be returned after the original cardboard box has been opened or the seal has been damaged. Devices without a serial number decal are excluded from the warranty and guarantee agreement.

Miscellaneous

Changes to technical specifications and errors are possible. The manufacturer reserves the right to change the technical specifications of individual devices and components at any time and without providing reasons. The copyright of this document is owned by **heddier electronic GmbH.** The production of copies for work support or maintenance of the **Human Detector** *Flex* security systems is permitted at any time. The production of copies for distribution to third parties, even in excerpts - by whatever means - is only permitted after written approval.

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Help & Support

Despite its simple operation, many users find modern security technology quite complex and can grasp the concept to some extend only. The diversity of museums and collections requires an expert and the task-related installation of the **Human Detector Flex** technology. The aim is to create a security system that is optimized to customer needs. If you are in charge of the installation, we would like to make the following suggestions:

Suggestion	Thoroughly read the operating instructions to understand the various functions and special features of the individual components. Compare the delivered systems with the documentation.
Suggestion	It often is beneficial to try out an installation outside the exhibition first. Build small functional units and put them into operation. Change the settings of the various components and observe the outcome.
Suggestion	Plan your security system in advance. Create a diagram of which sensors collaborate with which alarm devices. Use your diagram as a guide during the installation. If you make changes to your concept - which is very likely - enter them immediately in your diagram. **Remember, accurate project documentation is a prerequisite for all future work on your security system.**
Questions	Please direct any questions to your retailer first. They should be trained and be able to answer your questions. If not, they will receive the necessary support from us.
Training	Take advantage of our training opportunities. We will train you and your colleagues in the installation and use of the **Human Detector Flex** security technology. The training courses can take place at your premises or at our training centre in Coesfeld (near Münster in North Rhine-Westphalia, Germany). Training can be combined with the initial installation of your security system, if required. Our sales department will be happy to inform you about costs, conditions and dates for technical training.
Support	Do you need help quickly? Our technical support can be reached by phone **Monday to Thursday between 8.00 and 17.00 or on Friday until 15.00**. Training and technical support can be provided by email, phone or video conference (Microsoft Teams).

Technical Support: **heddier electronic GmbH**
support@heddier.com
Phone: +49 2864 95 178-0

Important!	**Check the functions of all installed components at regular intervals.** This is important in order to detect deviations from normal operation and possible errors at an early stage. Prepare and archive a test protocol. The tests can range from triggering a test alarm to checking the radio links and battery voltages. We will tell you about the exact procedure in our training courses.

heddier electronic GmbH reserves the right to make different service agreements with museums, collections, private collectors and other institutions. These agreements may include special services, response and repair times. All such agreements shall be in writing and signed. Verbal agreements outside the scope of the normal use of our systems and support are only valid after written confirmation.