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 - Human 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 Sensors

The **Human Detector** *Flex* System includes a range of sensors. All sensors have an extremely compact design, low energy consumption and a high radio range. The sensor housings provide good mechanical protection and are made of shatter-proof ABS plastic with a UL94V-1 fire rating.

The following chapters describe the functions of the different types of sensors. Take the time to read the information carefully. The right choice of sensor and the correct installation are important for the faultless operation.

Note:

Please contact us, if you cannot find a suitable type of sensor for your application. We will then try to develop a possible selection or operational environment for you. We are able to adapt sensors to your needs or develop new types of sensors in special cases. **Human Detector** *Flex* is an open system and grows with the requirements of the users.

heddier electronic GmbH offers upon request:

Training and coaching for interested customers.

Contact our sales department.

HDF-TOUCH

Use and Operation Principle

The **Human Detector** *Flex* sensor **HDF-TOUCH** was developed for the use in museums and exhibitions. Due to its function, however, it can also be used for other tasks, e.g. monitoring vehicles or other metallic objects. The small compact housing contains capacitive sensor electronics. These highly sensitive electronics detect changes in electrical charges on objects. Change of charges usual occur, for example, when body parts of people are in the immediate vicinity of the protected objects. In this case, the electric charge (electrons) on or in the object is discharged into the ground via the conductive human body. The human body is a good conductor because it consists largely of sodium chloride and water. The change in the charge on the object is detected by the **HDF-TOUCH** alarm sensor and an alarm is triggered. There are 64 adjustable levels of sensitivity on the alarm module.

The **HDF-TOUCH** - like other sensors from the **Human Detector** *Flex* range - is attached by two screw fittings.

The **HDF-TOUCH** is versatile in its application. Load changes can basically be detected on all metallic objects. Non-conductive objects can be monitored up to a certain size in the detection field of sensor plates. Touches are detected in the area covered by the detection field.

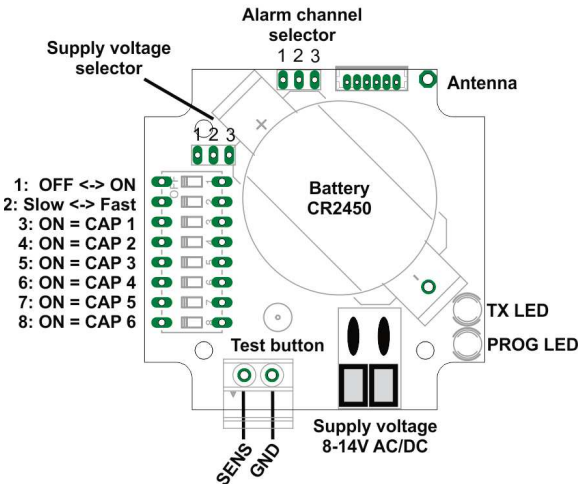
The **HDF-TOUCH** allows the following backup tasks to be carried:

- **protection of statues and sculptures made of metal**
- **protection of technical exhibits**
- **protection of vehicles**
- **protection of reliefs and large paintings**
- **protection of porcelain, small items and decorated tables**
- **... and many more**

Design and Connections

The electronics of the **Human Detector** *Flex* alarm module **HDF-TOUCH** are located on a printed circuit board inside the sensor 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. Use tweezers to move the jumpers (micro connectors).

HDF-TOUCH



Terminal Operating Voltage	**Operating voltage 8-14 V, AC or DC, current 100 mA min.** The connection has internal reverse polarity protection. **Only use rigid connection cables or flexible cables with wire end ferrules and a cross-section of 0.25 ... 0.34 mm². The use of cables with larger cross-sections may cause damage to the terminal**.
Selecting the Operating Voltage	**Pin 1 and pin 2 connected -> external operating voltage** **Pin 2 and pin 3 connected -> battery operation with CR2450 (standard setting)** Ensure that the micro connector is properly plugged in. It may come loose otherwise during operation and deactivate the sensor module.
Antenna	1/4 lambda wire aerial for 868 MHz
Selecting the Alarm Channel	**Pin 1 and pin 2 connected -> alarm channel 1 (default setting)** **Pin 2 and pin 3 connected -> alarm channel 2** Ensure that the micro connector is properly plugged in. It may come loose otherwise during operation and deactivate the sensor module.
Test button	Button for test transmissions and calibration
Multifunctional switch	1: Slide switch for switching on and off 2: Slow <-> fast mode (OFF = slow mode is default setting) 3-8: Capacity1-6 (see mounting location and installation) Use a pointed object (e.g. a biro) to operate the switch.
SENS/GND terminal	SENS -> connection sensor plate or exhibit GND -> connection reference plate
TRANSMITTING LED	Flashing red once -> transmission mode
PROG LED	Flashing green -> once per minute: message “Battery end of life imminent” Version number at start-up Various functions for calibration
CR2450 battery	Lithium button cell 3.0 V type CR2450

Note:

Slide switch 2 should always be in the OFF position. This selects slow mode and significantly reduces power consumption.

Mounting Location and Installation

The power and flexibility of the **Human Detector** *Flex* alarm system, amongst others, 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 mount the sensor module directly on metal surfaces or parts.
- 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 transmitting antenna.
- Choose an installation position of the sensor module so that there are no large metal parts between the module and the radio control unit. This is critical, for example, when the sensor modules are placed in display cases or vehicles.
- Choose an installation location so that you have access to the sensor module at all times. This is necessary, for example, for checks and changing the batteries.
- **Under no circumstances may unauthorised persons have free access to the sensor modules.** An exception can be sensor modules that inevitably trigger an alarm in the event of contact (such as **HDF-OPTICAL**, **HDF-TOUCH** and **HDF-3D PROTECT**). Access by unauthorised persons, however, should only be possible in exceptional circumstances.

Note:

The distance of 40 cm to metallic surfaces and parts can be reduced, if it is not possible to maintain this distance. In this case, however, you should check the stability of the radio link very carefully.

Choosing the location for installation

In order for the **HDF-TOUCH** alarm module to function properly, it must be placed close to its sensor surfaces. The maximum cable length should not exceed 200 cm for both the sensor and the reference plate cable. Since this is a sensor system that must detect the slightest changes in electric fields, the following basic rules must be observed:

- Never install the sensor module directly on metallic bodies, objects or surfaces.
- Make sure that the cables connecting the sensor and reference surface are exposed as much as possible and do not touch each other or other metal surfaces. Unnecessary crossings of the two connection cables should be avoided.
- Make sure that there are no live wires in the immediate vicinity of the alarm module, the connection lines or the sensor and reference surfaces. This also applies to pipes installed under floors.
- Look for lighting systems mounted near the sensor or reference surfaces. These can cause interference. Due to pulse width modulation (PWM for short), modern LED lighting in particular is prone to interference that spreads over greater distances.
- Ensure that the sensor and reference surfaces are always at a sufficiently large distance from each other. The distance should be at least 30 cm. The distance should be larger with large areas.
- If battery operation is not wanted, use only linear regulated power supplies, e.g. the **HD-PS12 power supply** from heddier electronic GmbH. Commercially available power supplies are secondary switched and not suitable for use with the **HDF-TOUCH** alarm sensor.

Note:

Capacitive sensor systems are complicated to use and should only be installed by experienced installers. Carry out various test installations first, if you are unsure. Try to come as close as possible to the required final security scenario. Once you reached the necessary level of security, you can transfer the installation to the exhibit. **Act cautiously in your approach.**

heddier electronic GmbH offers training courses for the installation of your Human Detector Flex alarm systems and will also support you on site, if required. Please contact our sales department for more information.

Different types of capacitive fuses

In general, there are three different options for capacitive fuse protection. The most suitable capacitive securing method should be selected, depending on the protected exhibit.

Direct protection of object with contacting

The sensor surface is omitted here. The exhibit is electrically conductive and directly connected to the SENS input. Examples are vehicles, machines and bronze sculptures. The exhibit is completely enclosed in a protective cover.

Indirect object protection through projected-capacitive protection

In this case, the exhibit is made of metal; direct contact is not possible. The sensor foil is fixed at a certain distance below or behind the object. The capacitive fuse "projects" itself into the exhibit and completely surrounds it with a protective cover. Typical examples are delicate metal objects such as clocks and goblets standing on a wooden pedestal with a material thickness of e.g. 19 mm.

Passive capacitive fuse

Passive capacitive fusing is used when the protected object is not metallically conductive. The protected area here corresponds to the area created by the sensor plate or foil. There is no range extension as is the case with metallic objects. Typical examples are the protection of wooden and stone reliefs.

Selecting the Operating Voltage

The **Human Detector Flex** alarm sensors have the option of being operated by battery or external power supply (see "Design and Connections").

Battery Operation

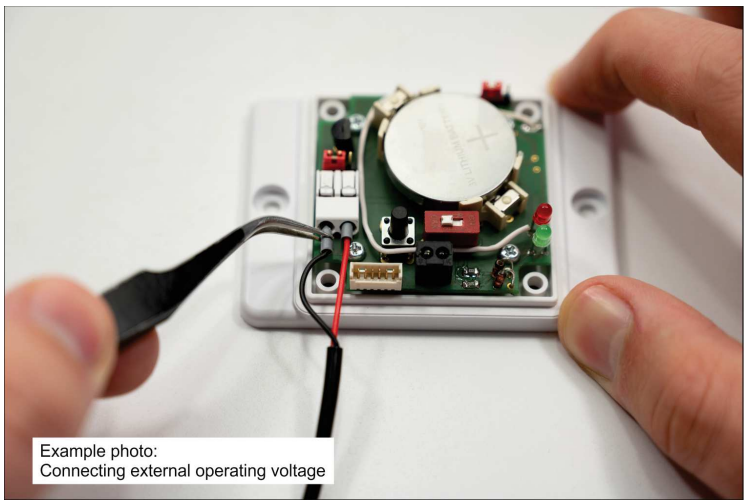
Your sensor module is supplied with a CR2450 lithium button cell *1. Please insert these into the sensor module as follows:

- Check that the on/off switch is in the "Off" position. Otherwise, change the setting accordingly.
- Remove the four outer screws and remove the cover from the sensor housing.
- Insert the included **CR2450** battery into the holder. The positive terminal should point up. Apply slight pressure to lock the battery into the holder. Check the proper engagement of the battery.
- Check whether pin 2 and pin 3 are connected to the micro connector in the "Operating voltage selection" field.

- Close the sensor housing by inserting and tightening the four housing cover screws. Proceed carefully and do not overtighten the screws.
- Switch on the sensor module. First, an alarm is automatically generated during start-up. The red TRANSMITTING LED flashes once, the green PROG LED indicates the version status (e.g. _short_ ___long___ for version A).

Note:

Be careful not to damage the electronics on the circuit board when inserting the battery.



Example photo:
Connecting external operating voltage

Operation with External Power Supply Unit

In general, any power supply unit with an operating voltage of 8-14 V AC or DC can be used. The installer is responsible to ensure compliance with the legal requirements relating to the power supply unit. These can vary depending on country and region. The alarm modules contain an internal rectifier that is capable of operating with AC voltages. The current of the power supply unit should be at least 100 mA. Ensure that the current is stable without the operating voltage dropping.

Note:

heddier electronic GmbH supplies a suitable power supply unit with an output voltage of 12 V DC and a max. current of 2000 mA (item: **NT-12-2A**).

To start up the alarm module with an external power supply unit, proceed as follows:

- Check that the on/off switch on the alarm module is in the "Off" position. Otherwise, change the setting accordingly.
- Remove the four outer screws and remove the cover from the sensor housing.
- Connect the two connection cables of the power supply unit to the operating voltage connection terminal on the upper side of the sensor circuit board. Polarity is of no importance here (see above).

Important note:

Use tweezers or a small pair of pliers to insert the cable ends into the terminals. **Only use a rigid cable with a cross-section of 0.25 - 0.34 mm². It is also possible to use a flexible cable with appropriately sized ferrules.** Cables with a larger cross-section than 0.34 mm² can cause permanent damage to the terminals.

The image shown may differ from the sensor module you are using. This does not affect the basic procedure.

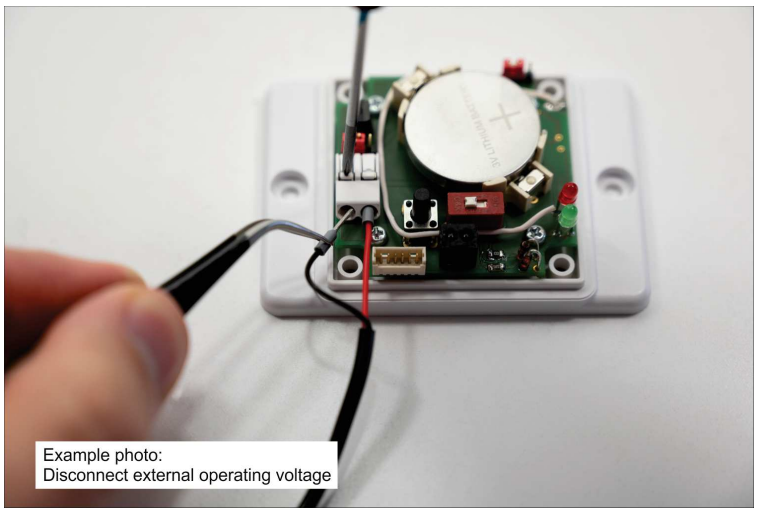
- Check in the "Operating voltage selection" plug-in field whether pin1 and pin2 are connected to the micro connector.
- There is a recess in the housing cover through which you can lead the external voltage cable to the outside.
- Close the sensor housing by inserting and tightening the four housing cover screws. Proceed carefully and do not overtighten the screws. Make sure that the external power cable is properly inserted and routed out.
- Put the external power supply unit into operation.
- Switch on the sensor module. First, an alarm is automatically generated during start-up. The red TRANSMITTING LED flashes once, the green PROG LED indicates the version status (e.g. _short_ ___long___ for version A).

Note:

Be careful not to damage the electronics on the circuit board when connecting the external power supply.

Press the corresponding retaining button on the terminal and carefully pull out the cable to remove an external voltage cable. Use a suitable tool and proceed with care (see photo above).

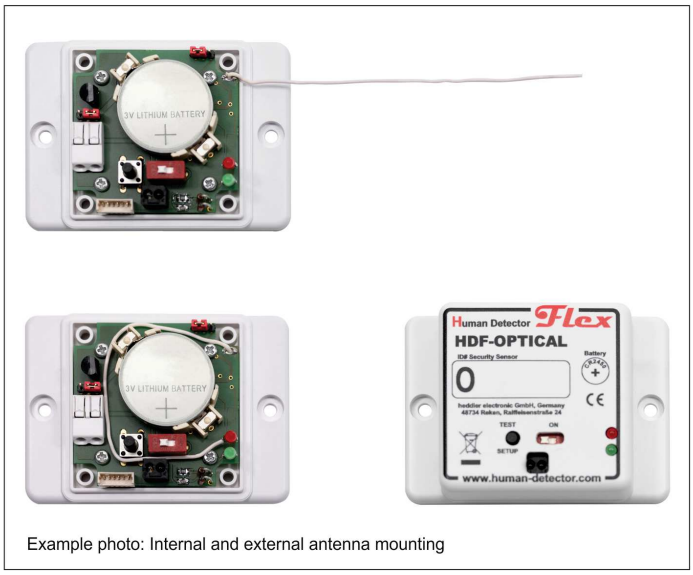
***1: The CR2450 lithium batteries may not be supplied when shipping larger quantities of alarm sensors by air freight.**


Example photo:
Disconnect external operating voltage

Increasing the range by externally placing the antenna on the sensor module

The **Human Detector** *Flex* alarm sensors have a built-in ¼ lambda wire aerial. This has been adapted in length for the transmission frequency of 868 MHz. The antenna is delivered in the plastic housing of the sensor module. In order to fit into the housing, the antenna is bent and placed between the components on the top of the circuit board. Ensure that the antenna is exposed and not trapped by the housing cover. The function of the on/off switch and the test button must not be restricted by the antenna.

Shadowing may occur in the radio propagation, as there are components, such as the lithium button cell, in the direct vicinity of the antenna. If you find that the range of the sensor module is not sufficient, you should move the antenna to the outside (external). **The use of a properly aligned external antenna increases the range considerably.**



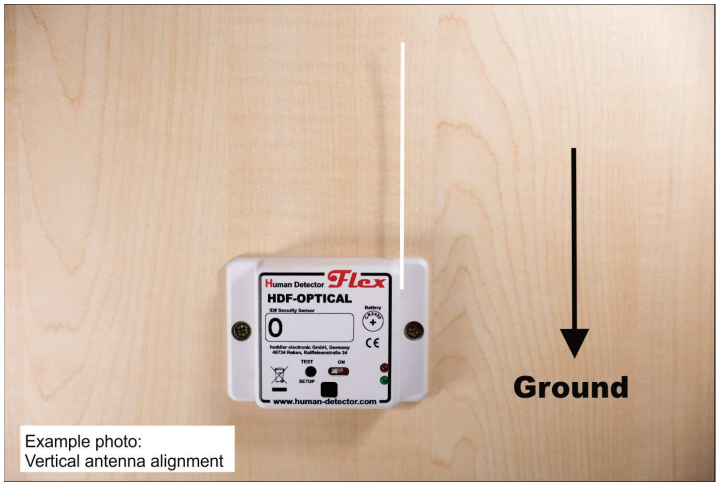
Example photo: Internal and external antenna mounting

Proceed as follows:

- Open the sensor housing by removing the four locking screws.
- Carefully lift the wire aerial and pull it straight out from its attachment point.
- Look at the top of the plastic housing. There is a small recess. This enables you to guide the antenna to the outside when the housing is closed. Place the wire aerial in such a way that it points outwards at the correct position.
- Close the sensor housing by placing the upper part on top and closing the housing with the four locking screws. Make sure that the wire aerial is routed through the recess.

Note:

Ensure that the wire aerial is correctly aligned after attaching the sensor module to its final mounting location. **Depending on the location of the sensor housing outlet pull the antenna vertically up or down.** This is referred to as vertical alignment of the antenna. This should be the same for all sensor modules and alarm centres. This enables an optimum range for radio transmission.



Example photo:
Vertical antenna alignment

Protection of different exhibits

The advantage of securing exhibits with capacitive sensors is that the approach of a person occurs before the actual physical touch. The distance of detection (time of alarm triggering) can then be influenced by a range of factors.

In general, the following factors influence the triggering behaviour:

- **Set sensitivity on the alarm sensor**
  There are 64 levels for the adjustment of the sensitivity (see below)

- **Size of the sensor area**
  The shutter release distance increases with the sensor size up to a certain sensor area size. The sensitivity no longer increases once the sensor area is approx. 1m^2 or more.

- **Type of sensor area**
  A closed sensor area (foil or plate) generally has a higher sensitivity than an open sensor area (e.g. wire mesh).

- **Position of the sensor area (projected-capacitive protection)**
  With projected-capacitive protection, the sensor area connects with the protected metallic conductive exhibit. It is important here that two large areas of the sensor and the exhibit are as close to each other as possible. Both, the increase of the area and the shortening of the distance, increase sensitivity.

- **Reference area size**
  An increase in the reference area results in an increased sensitivity.

- **Type of reference area**
  A closed reference area (foil or plate) generally has a higher sensitivity than an open reference area (e.g. wire mesh).

- **Position of the reference area in relation to the sensor area**
  The sensitivity is reduced, if the sensor area and the reference area are positioned on top of each other over a large area. This even applies if the required minimum distances are observed.

- **Position of the sensor area**
  To achieve the greatest possible sensitivity, the reference area (foil or plate) should be flat on the floor. The sensitivity is reduced, if the reference area is placed on a higher level.

The factors mentioned above all influence the trigger sensitivity and can be influenced by the installation. Another factor, however, is the person approaching the exhibit. The "capacity versus mass" is decisive here, which varies from one person to another.

The factors below influence the triggering behaviour. However, the influence is never large enough in order to raise any doubt about the basic function of the capacitive sensors.

- **Physique of the person**
  Heavy, bulky people with large feet are more likely to trigger.

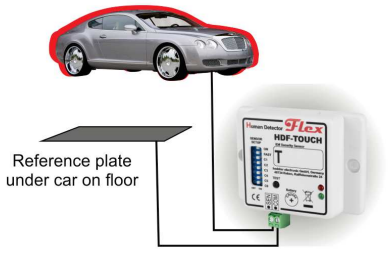
- **Shoes of the person**
  People with extremely high shoes trigger later than people with flat shoes.

- **Type of approach**
  The larger the body area of a person approaching the sensor area, the higher the sensitivity. A flat hand, for example, is more likely to trigger than a pointed finger.

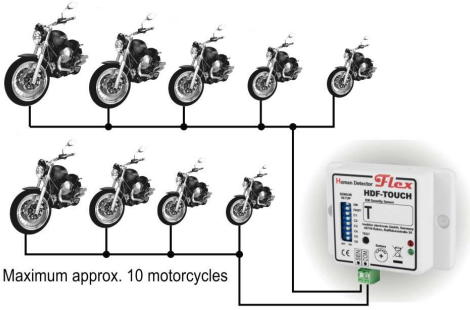
Taking into account the factors listed above, there are different types of security for the different objects.

The largest exhibits to be secured include vehicles such as classic and sports cars. If these are made of metal or carbon, securing these with the **HDF-TOUCH** alarm sensor is possible in principle. The trigger range can be greatly reduced, depending on the size of the vehicle. Corrective action can be taken here, with the factors described above.

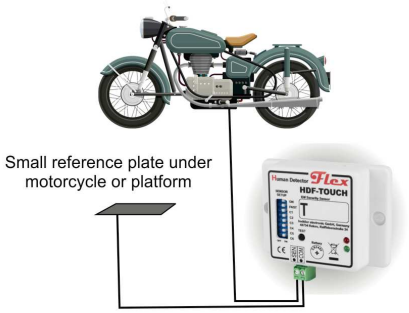
Simultaneous securing of 2 vehicles



Single securing of vehicle

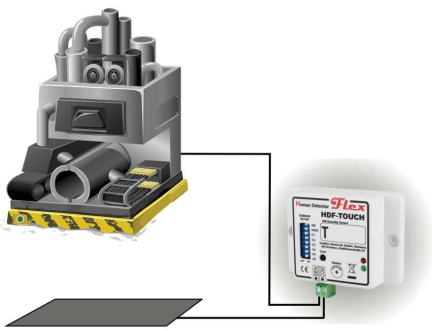


Securing multiple motorcycles

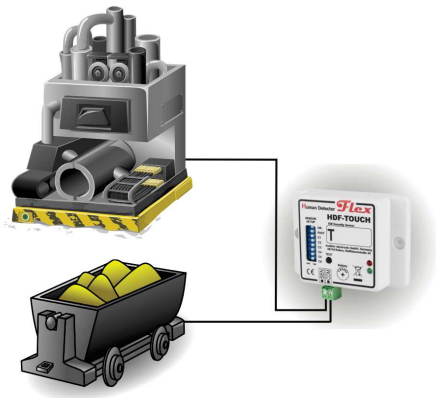


Securing single motorcycle

Comparable requirements are in place for securing machines and technical exhibits. It is important that the exhibit does not stand fully on the floor. In this case, capacitive protection is often not possible or only possible with a short trigger range.

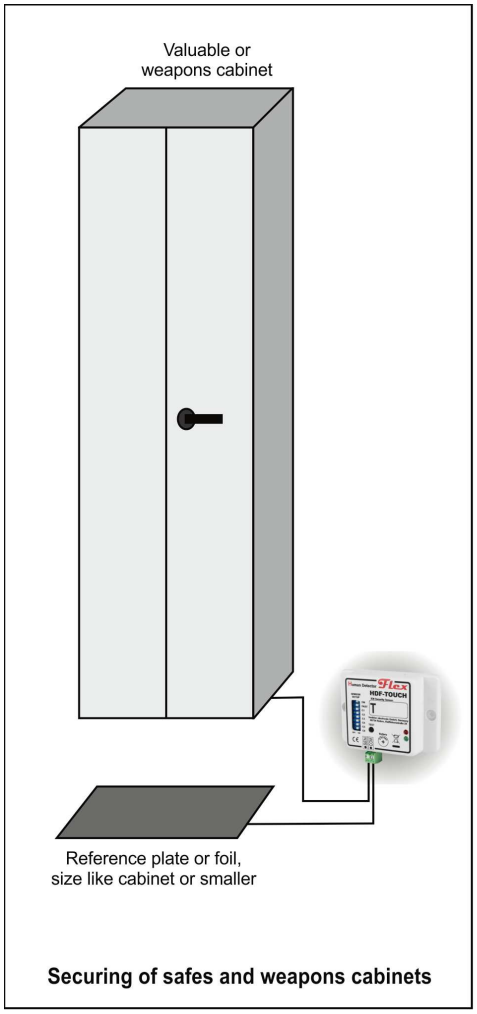


Securing with remote reference plate

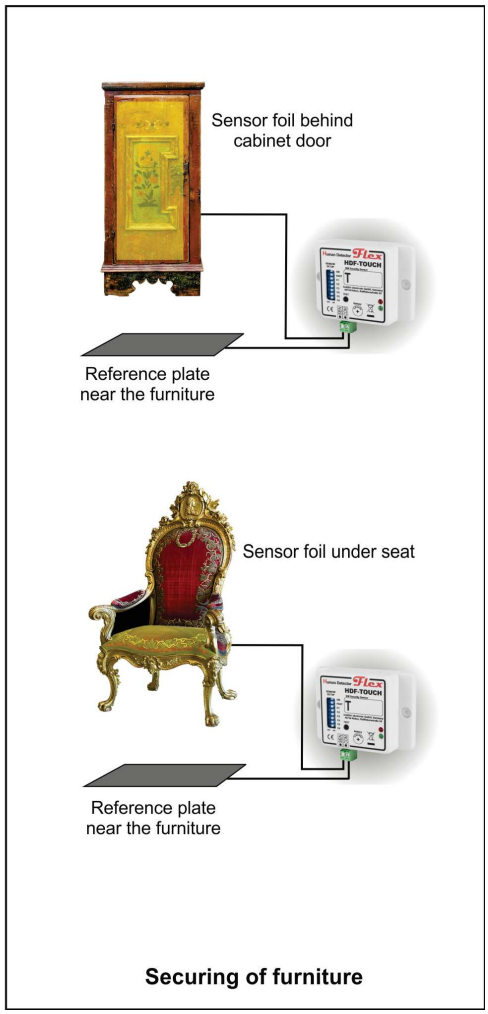


Securing of two exhibits

Securing furniture is a different matter. The variety of furniture, the materials used and the sensitivity of the furniture surfaces require a well-considered approach. We recommend that this work is carried out in cooperation or by arrangement with a furniture restorer.

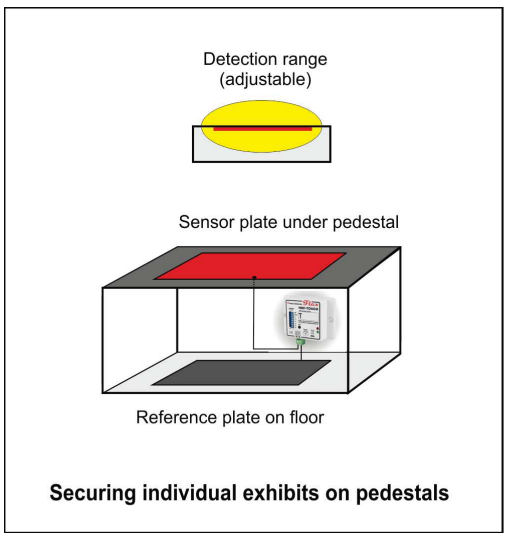


Securing of safes and weapons cabinets

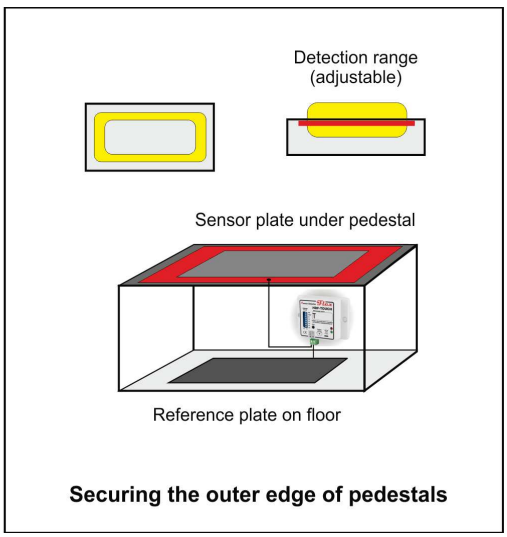


Securing of furniture

Securing platforms is often one of the required tasks during an exhibition. However, securing with capacitive sensors is only recommended for small and medium-sized platforms. It is also important that the platform base does not include any metal structures. In most cases it is easier, but also more costly, to use laser scanners to secure platforms.

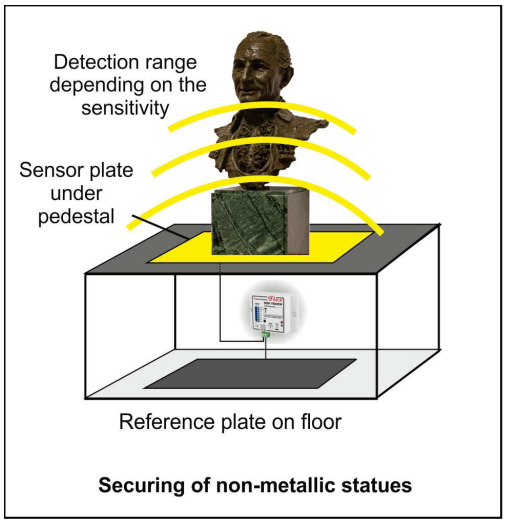


Securing individual exhibits on pedestals

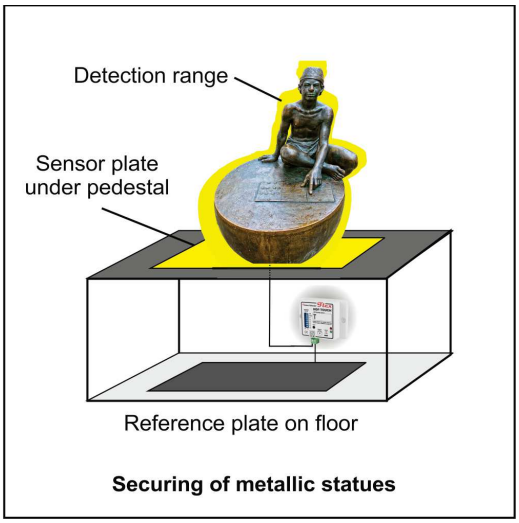


Securing the outer edge of pedestals

The **HDF-TOUCH** capacitive sensor module is well suited for securing sculptures and statues. It must be taken into account, however, whether they are made of conductive material (e.g. bronze) or non-conductive material (e.g. marble).



Securing of non-metallic statues



Securing of metallic statues

Calibration of the HDF-TOUCH sensor module

The requirements for the capacitive sensor differ depending on size, material and type of the protected object. It is therefore **imperative** to carry out appropriate synchronization.

Additional measuring capacities can be switched on and off via the slide switches 3 to 8. The sensitive field around the object is increased or reduced, depending on the setting of the slide switches. This allows the triggering distance of the **HDF-TOUCH** sensor module to be adjusted.

As a general rule, a higher amount of measuring capacity must be connected for larger objects. Combinations are possible in any form.

Slide switch to ON	Measuring capacity	Sensitivity increase and decrease
3	10nF	2.2%
4	22nF	4.8%
5	47nF	10.3%
6	47nF	10.3%
7	100nF	21.9%

A measuring capacitance of 10nF is always active. This corresponds to a sensitivity of 2.2%.

The following procedure is recommended when setting the sensitivity:

- First select a basic setting. For small objects, for example, 3, 4 and 5 on ON would make sense. For large objects, 4, 6 and 7 on ON would be advisable.
- Change the setting of the slide switches according to the list above.
- Leave the measuring area.
- Check the new setting. It is important that the check is always carried out in the same way (e.g. slowly approaching with a flat hand). An alarm or the illuminated red TRANSMITTING LED tells you that the approach has been detected.
- Repeat the process until you have reached the optimal setting or the maximum detection range of the **HDF-TOUCH** module.

Note:

No alarm can be triggered, if the setting of the measuring capacities is clearly too large or too small for the protected object. If the module does not return to normal operation after changing the sensitivity in some rare cases, we recommend to switch off the **HDF-TOUCH** sensor module completely. Use slide switch 1 for this.

Slide switch 2 should always be in the OFF position. This selects slow mode and reduces power consumption.

End of installation test

Perform a function test after completing all assembly work. For this purpose switch on the sensor module and trigger an alarm. You can also press the test button, if this is not possible at this time due to the set-up. In both cases, the red TRANSMITTING LED should briefly illuminate. This indicates transmission mode. If the sensor module is already linked to an operating alarm centre, an alarm must be output by the centre (**HDF-BUZZER** or **HDF-SPEECH**).

Check the complete set-up again, if an alarm cannot be triggered or the TRANSMITTING LED does not flash.

Possible causes for faults are:

- The sensor module is not switched on.
- "Battery mode" is selected and the battery is not inserted.
- "Battery operation" is selected and the battery is empty (e.g. old battery).
- "Battery operation" is selected and the micro connector is not positioned on pin2 and pin3 of the "Operating voltage selection" connector panel.
- "External operating voltage" is selected and the power supply unit is not switched on.
- "External operating voltage" is selected and the micro connector is not positioned on pin1 and pin2 of the "Operating voltage selection" connector panel.

In very bright light conditions, you may not notice the red TRANSMITTING LED flashing. In this case, it is advisable to shade the alarm sensor, e.g. by hand, and then repeat the test procedure.

heddier electronic GmbH offers training courses for the installation of your Human Detector Flex alarm systems and will also support you on site, if required. Please contact our sales department for more information.

System Login

The **Human Detector** *Flex* security system has three operating modes with different levels of performance.

EASY-Mode operating modes for simple, small and medium size installations

MULTI-Mode operating modes supported by powerful software

PROFI-Mode high-end system with transmission to IP based control center

Switching between the operating modes is possible at any time. All components are upward compatible. This means that you can switch to a higher operating mode at any time and use the previously purchased units without restriction. You can also downsize larger security installations at any time or transfer theses into several, independent smaller installations. The **Human Detector** *Flex* Technology offers maximum return on your investment.

Registration of alarm sensors in EASY-Mode

EASY-Mode is the most simple operating mode. Due to its performance, it meets the demands of a wide range of users. Up to 30 alarm sensors incl. hand-held transmitters can be connected in **EASY-Mode** to an **HDF-BUZZER** or **HDF-SPEECH** alarm centre. However, it is also possible to connect one alarm sensor with several alarm centres. This is useful in applications where an alarm is to be output at several locations.

Pairing is done by pressing the pairing and test buttons. When these buttons are pressed, the system operating data and identifiers are automatically shared. No additional configuration is required.

(+) Advantages EASY-Mode:

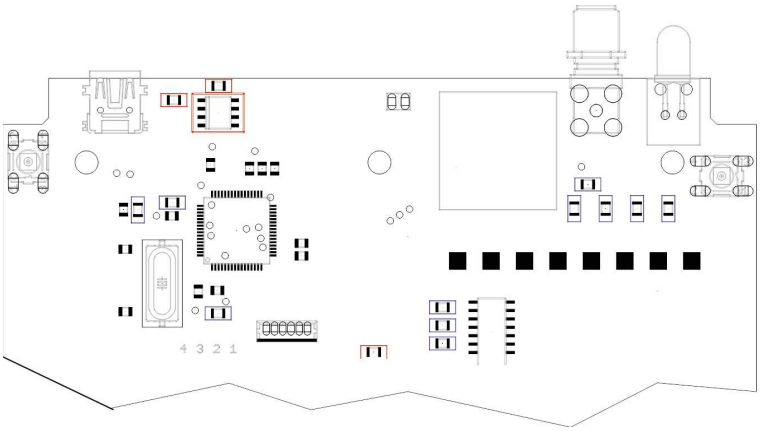
- Pairing in seconds at the touch of a button
- Fast training for inexperienced users

(-) Disadvantages EASY-Mode:

- Limited to 30 alarm sensors max. per alarm centre
- Deletion only in complete blocks (no individual deletion)
- All paired sensors offer the same alarm behaviour at the respective alarm centre. This may vary at the individual alarm centres.
- Project documentation must be created manually by the user
- No active monitoring of vital signs (Heartbeat Monitoring, HBM)

To log in in **EASY-Mode**, proceed as follows:

- Open the housing of the **HDF-BUZZER** or **HDF-SPEECH** alarm centre by unscrewing the 4 screws on the back.
- Switch on the alarm centre.
- Switch on the alarm sensor to be registered.
- **Press the pairing button on the alarm centre once.** The RX LED next to the pairing button flashes once to indicate pairing readiness.



- **Also press the test button on the sensor module once.** Successful pairing is indicated by a double flash of the red RX LED next to the pairing button.
- Press the test button repeatedly. Each time it is pressed again, an alarm is triggered.

You can now register more sensors by repeating the process. Close the housing of the alarm centre after completion of the work.

Important note:

The alarm centre has a maximum of 30 memory locations for identifiers of alarm modules. If all memory locations are already occupied by older installations, you should first reset the alarm centre to its original state. All 30 occupied memory locations are then deleted. Individual memory locations cannot be deleted. All alarm sensors must be re-registered after a reset to the original state.

Attention - this procedure deletes all previous logins to this alarm centre!

To reset the alarm centre to its original state, proceed as follows:

- Open the housing of the **HDF-BUZZER** or **HDF-SPEECH** alarm centre by unscrewing the 4 screws on the back.
- Switch on the alarm centre.
- **Press the pairing button for at least 10 seconds.** The RX LED next to the pairing button illuminates continuously during the delete process. The RX LED flashes three times when the delete process is finished. You can now stop pressing the pairing button. All connections to the previously paired sensors are now deleted. The alarm centre is reset to its original state.

Note:

Please do not forget to provide documentation of the work you carried out. This is necessary in order to completely understand the functionality of the security system.

Registration of alarm sensors in MULTI- and PROFI-Mode

Registration in **MULTI-** or **PROFI-Mode** is only possible with the **HDF-CONFIGURATOR** software, which is available free of charge. The operating modes provide for maximum flexibility and performance. Up to 200 alarm sensors can be connected to one alarm centre.

The entire security network is designed on the PC with the **HDF-CONFIGURATOR** Windows software. Once the design is complete, the module identifiers are transmitted to the software. The control files for the alarm

centres (**HDF-BUZZER** and **HDF-SPEECH**) and the **HDF-AMD** alarm management unit are generated from this. These are then transferred to the relevant units (**HDF-BUZZER**, **HDF-SPEECH** or **HDF-AMD**) via USB interface or WLAN.

(+) Advantages MULTI or PROFI mode:

- Support of up to 200 alarm sensors per alarm centre
- Easy configuration with the **HDF-CONFIGURATOR** Windows software
- Variable setting of alarm behaviour and networking
- Automatic generation of complete project documentation
- Forwarding of alarm messages to IP based control center

(-) Disadvantages MULT-I or PROFI-Mode:

- Familiarisation with **HDF-CONFIGURATOR** software required
- More complex installation of the **HDF-AMD** alarm management system

The exact procedure for registering sensors in **MULTI-** and **PROFI-Mode** is described in the chapter "**Human Detector Flex Software**".

Maintenance and Care

The **Human Detector** *Flex* alarm sensors require no special maintenance and care. However, as these are safety-relevant systems, regular checks are recommended. The following should be noted here.

Regular testing of the alarm sensors

The functionality of the respective sensor module should be checked at regular intervals. An alarm must be triggered on the sensor module for this purpose. The test frequency must be in accordance with the security plan of your institution. **At least one test should be carried out per year. Record the test and archive the documentation.**

Depending on your operating modes (**EASY-, MULTI-** or **PROFI-Mode**), check the below functions:

1. **EASY- and MULTI-Mode installations**
    - Trigger an alarm.
    - Check that the alarm reaches the designated alarm centres.
    - Check that no message “Battery end of life imminent” is output together with the alarm. (double tone to **HDF-SPEECH** or **HDF-BUZZER**)
    - Check that the alarm sensor is properly mounted.
    - Check that the alarm sensor shows no sign of external damage.
    - If the antenna has been placed out of the plastic housing (see: Mounting Location and Installation), its correct alignment must be checked.
    - Check that no shielding objects have been retrofitted near the alarm sensors.
    - If additional external cables are connected to the sensor (**HDF-EXTERN**, **HDF-WIRE** and **HDF-TOUCH**), check for correct connection and cable routing.
    - With the sensor for gallery rails **HDF-HANG**, also check for correct connection to the retaining rope.

2. **Additional tests in PROFI mode**
    - Check whether the alarm reaches the control center.
    - Check that no message “Battery end of life imminent” has been sent.
    - Note the reception field strength of the alarm module and compare it with older recorded data.

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.

Unless the alarm modules are powered with an external power supply unit, batteries may have to be replaced when necessary. **The calculated lifetime of the batteries listed in the data sheets is only for reference.** It can be influenced positively or negatively by factors such as temperature, alarm frequency, battery age and original battery capacity.

Changing the batteries of the alarm modules

- Switch off the alarm module.
- Dismantle the alarm sensor for access to the screw fitting on the back.
- Loosen the four outer screws and remove the cover from the sensor housing.
- Remove the battery from the housing. Carefully push it out of the holder by pressing on the edge of the battery.
- Insert the new **CR2450** battery into the holder. The positive pole should point upwards. Apply slight pressure for the battery to lock into the holder. Ensure that the battery is properly latched.

  Note!

  Only use branded batteries of the **CR2450** type. Inexpensive batteries from unknown manufacturers often have a significantly lower capacity and a higher self-discharge. **Defective batteries can leak. The batteries contain mercury and there is the risk of poisoning if touched.**
- Close the sensor housing by inserting and tightening the four housing cover screws. Proceed carefully and do not overtighten the screws.
- Install the sensor system again in its old position.
- Check - if connected - all additional external cables (**HDF-WIRE**, **HDF-EXTERN** and **HDF-TOUCH**). Check - if necessary - the connection to the retaining rope at the **HDF-HANG**.
- Switch on the sensor module. During switch-on an alarm is generated automatically. You can also press the test button on the sensor. This also triggers an alarm.
- Provided that the generated alarm messages have reached their destination, you should now test the entire installation again and trigger an alarm. Check whether the alarm reaches its destination (**HDF-BUZZER**, **HDF-SPEECH** or **IP based alarm center**).
- Document the battery change.

Note!

Be careful not to damage the electronics on the circuit board when changing the battery.

Cleaning the sensor housings

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 surface of the sensor housing with the paper.
- Then check the function of the alarm module by triggering a test alarm.

Note!

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

In case of dirt or moisture in the sensor 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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Human Detector is a registered trademark of heddier electronic GmbH.

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.