

Human Detector

Security and Surveillance Technology for Museums, Exhibitions, Private Collections and the Automotive Trade

The **Human Detector** represents a powerful, compact and quickly deployable security and surveillance system for the protection of your exhibits. Whether automobiles or pieces of art, the **Human Detector** succeeds to convince with its versatile applications.

Vibration, movement, approach or physical contact - the **Human Detector** registers and reports a range of interferences whilst reliably protecting your valuable exhibits.

The Human Detector Module

is directly installed on the object that requires protection. It comprises several sensors and immediately sends wireless alarm signal to the control centre. Seismic, capacitive and tamper sensors are already integrated in the module. A radar sensor and a range of external sensor can be integrated via flexible connections.

The Human Detector Centre

provides the connection to all **Human Detector** modules. All alarm messages converge here, which are converted into acoustic, optical or switching signals. All incoming messages can be logged and stored via the USB interface. Surveillance cameras and alarm systems are controlled by the **Human Detector** Centre.

**H**uman
Detector

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Safety Information

The **Human Detector** systems are designed and manufactured in accordance with the latest quality and safety standards. Please note the following installation and usage information:

1. Study the safety information

Read the manual in full before putting the device into operation. Please keep this manual in a safe place. Consider all safety information contained in this manual.

2. Entry of objects or liquids:

Avoid entry of objects or liquids into the housings of the **Human Detector** systems. In case of entry of objects or liquids immediately disconnect the device from the power source (mains or battery) and send the device to an authorized retailer or the manufacturer for testing.

3. High temperatures

Keep the systems away from fire, heating or any other heat sources. Never install the **Human Detector** sensors in or on inflammable components, such as fuel tanks.

4. Climate

The devices are designed for the use in temperatures between -15°C and +45°C. The use outside this temperature range can result in permanent damage to the device and is to be avoided.

5. Cleaning

Use a dry cloth when cleaning or dusting the **Human Detector** sensors. Do not use liquids for cleaning.

6. Power supply

Never connect the **Human Detector** Centre directly to a 230V mains supply. Operation can only occur via a suitable power supply (primarily 230V AC and secondarily 5V DC).

Never connect the **Human Detector** module directly to a 230V mains supply. Operation can only occur via a suitable power supply (primarily 230V AC and secondarily 12V DC) or via 2 lithium batteries type CR123 (or similar). Only use branded batteries to avoid damages through leaking batteries.

When in doubt seek the assistance of a qualified electrician or your supplier.

Important Safety information: Only trained and qualified staff are allowed to perform tasks relating to installation, programming and set-up. Later amendments during normal operation (for example moving **Human Detector** modules) can be made by instructed employees (not qualified personnel). The safety information mentioned above and the general rules of good practise in electrical engineering must, however, be observed. **If in doubt seek the assistance of your supplier or a qualified electrician.**

Human Detector Module

Installation of the Human Detector Module

The **Human Detector** module is installed directly on the object to be protected. The surface must be flat. The mounting surface should be rigidly connected with the object in order to sustain correct operation of the seismic sensors.

The module is mounted via 2 screw holes in the base of the housing. Alternatively the sensor can be tied or glued to the surface.



Features of the Human Detector Module

Seismic Protection: The **Human Detector** module can detect all kinds of vibrations. For the correct operation a rigid mechanical connection is required between the **Human Detector** module and the object. There are 3 levels of sensitivity.

Capacitive Protection: Nearly all electrically conductive objects can be capacitively secured with the **Human Detector** module. All that is needed besides the object to be secured is a reference potential in the shape of an electrical conductor. For smaller objects a single core looped circuit is usually sufficient. For larger objects, such as automobiles, the use of thin metal sheets is recommended. The reference potential is installed in a suitable distance to and without contact to the object. The sensor must be calibrated to the physical properties of the object.

Important safety information: The capacitive sensor input must not be connected to a live cable. Failure to comply with this may result in human injury or damage to the **Human Detector** module.

NC input for external Sensors: External sensors (such as motion sensors) can be integrated into the **Human Detector** system. All that is required for this is a NC output (NC = Normally Closed) on the sensor. Alarm messages are sent to the **Human Detector** Centre as is the case with internal sensors.

Radar Sensor: The radar sensor 'RS-1Z' from heddier electronic GmbH can be directly connected to the **Human Detector** module. The sensor reliably detects movement of up to 2.5 metres within the cone-shaped detection area of the sensor. Please go to www.heddier.com for further information on radar sensors.

Tamper Protection: Deliberate manipulation on the **Human Detector** module is considerably impeded thanks to the integrated tamper contact. An alarm message is generated as soon as the housing of the **Human Detector** module is opened or damaged.

Acoustic Alarm Transmitter: The acoustic alarm transmitter, which is integrated in the **Human Detector** module, provides a loud buzzing sound and provides effective protection against unintended contact, vandalism and theft of the protected object.

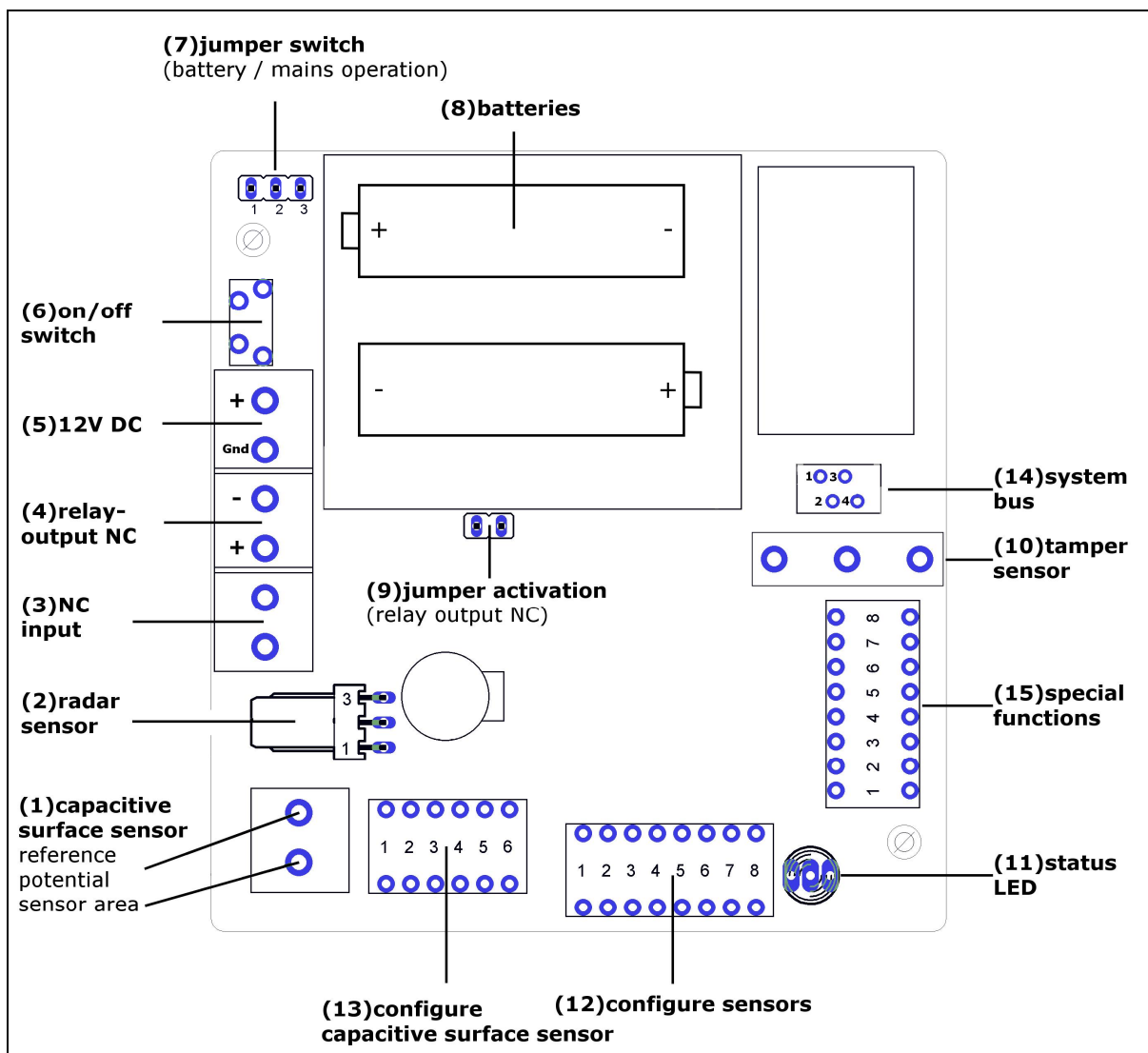
Note: Depending on the location a reduction of the buzzing sound could be desired. This can be easily realised by using usual adhesive tape to cover the sound opening. Open the housing of the **Human Detector** module and localize the acoustic alarm transmitter. Mount the adhesive tape as described.

NC relay output: External loads can be switched via the relay output. The maximum load capacity (50V AC 0.25A) of the NC relay output must be observed.

Note: Due to the increased power consumption the relay and radar sensor support is only activated when the **Human Detector** module is active with external power supply. The batteries must be removed from the **Human Detector** module and the power supply must be connected.

Structure of the Human Detector Module

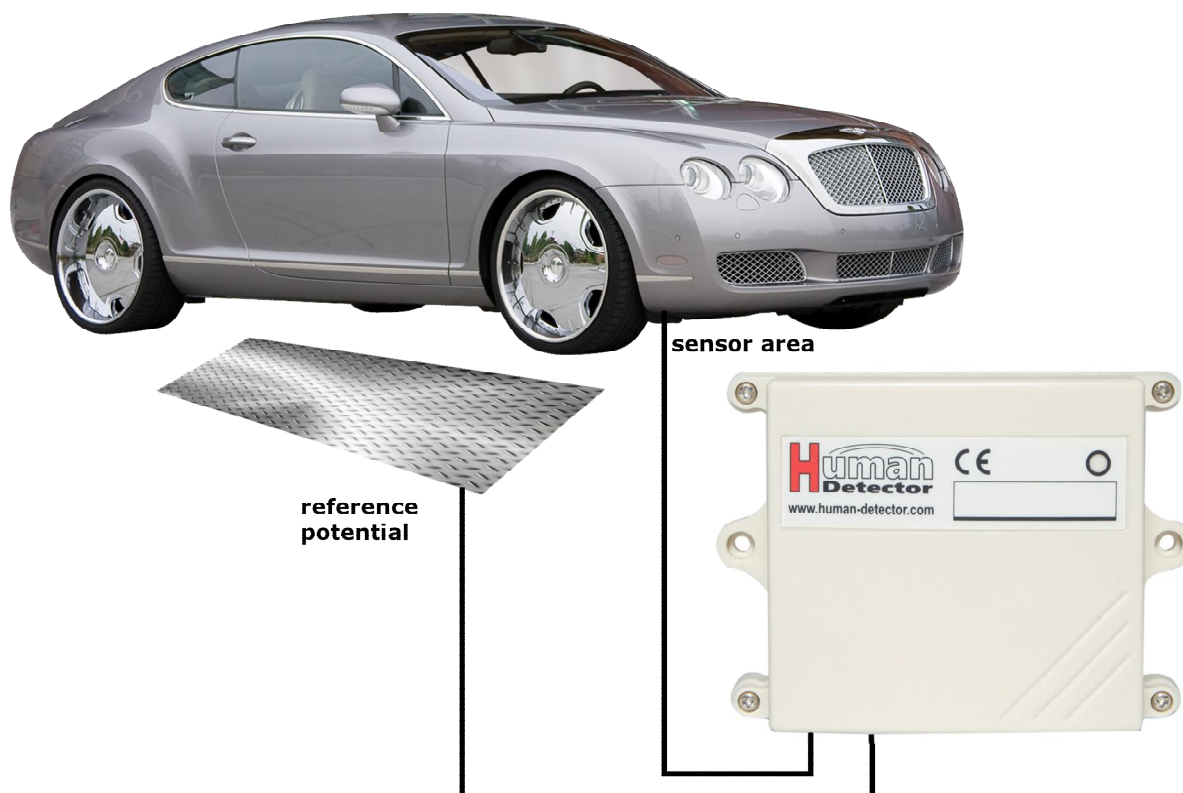
Note: Each time the DIP switch settings are changed the **Human Detector** module must be manually switched off and then back on again!



(1) Connecting the Capacitive Sensor

Sensor Area: This screw connection is connected to the sensor on the object to be protected via the shortest possible cable. A safe low-resistance connection must be provided.

Reference Potential: This screw connection is connected to the reference potential (in the form of an electrical conductor, a ground plate or a ground connection) via a shortest possible cable. For smaller objects a single core looped circuit is usually sufficient. For larger objects, such as automobiles, the use of thin metal sheets is recommended. The reference potential is installed in a suitable distance to and without contact to the object.



Example: Protection of Automobiles

The protection and monitoring of automobiles can be easily realised with the **Human Detector** using a capacitive sensor. In addition to the **Human Detector** module only a reference potential in the form of a metal plate is required. The above figure shows an example of such a structure.

Structure: The car is connected to the **Human Detector** module (terminal "sensor area") via a short single-wire conductor. The contact at the car must be electrically conductive with the car body. The contact can, for example, take place via a 'crocodile clip' so that the car can be quickly disconnected from the system or replaced with another vehicle.

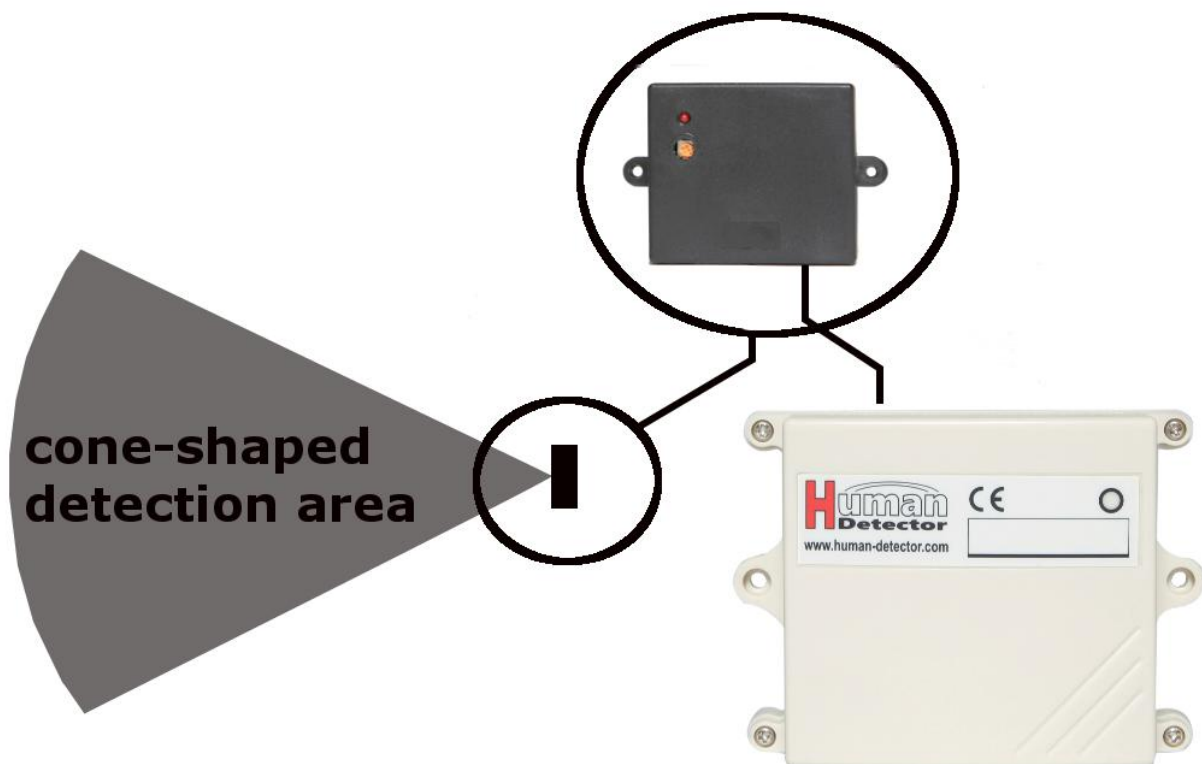
The module must also be connected to the reference potential via a short, single-core conductor (connecting terminal 'reference potential'). Metallic sheets (stainless steel, steel sheet, aluminium) are suitable to be used as reference potential. For automobiles sheet metal with a thickness of 0.5mm and a surface area of approx. 0.5m² have proved to be sufficient. They are placed under the car on the ground in the middle of the car.

Setting: The required settings for the adjustment to the vehicle are made at the **Human Detector** module. Only the corresponding capacities need to be connected via the DIP switches (13), see chapter "Configuration of the Capacitive Sensor". The ideal triggering characteristics differ depending on the object. The following table is for information purposes. The values may however need to be individually adjusted.

Object	Reference Potential	Capacity
Automobile	Sheet metal - 0.5mm thickness - 0.5m ²	267nF (DIP 3 + 6)
Bronze sculpture (height 25cm, diameter 7cm)	Earth foil - 50x50mm (distance to sensor area approx. 20mm)	0nF - 5cm triggering distance 10nF - 10cm triggering distance 32nF - 20cm triggering distance 79nF - 25cm triggering distance 126nF - 40cm triggering distance
Sensor plate (40x40cm)	Earth foil 50x50cm (distance to sensor area approx. 20mm)	0nF - 10cm triggering distance 10nF - 20cm triggering distance 32nF - 30cm triggering distance 79nF - 45cm triggering distance
Sensor plate (60x100cm)	Earth foil 50x100cm (distance to sensor area approx. 20mm)	0nF - 2cm triggering distance 10nF - 5cm triggering distance 22nF - 20cm triggering distance 32nF - 25cm triggering distance
Sensor plate (150x100cm)	Earth foil 150x100cm (distance to sensor area approx. 20mm)	0nF - 0.1cm triggering distance 10nF - 5cm triggering distance 32nF - 10cm triggering distance 47nF - 20cm triggering distance 79nF - 35cm triggering distance 226nF - 60cm triggering distance

Note: The indicated triggering distances are approximate distances and can differ strongly due to various influencing factors.

(2) Connecting the Radar Sensor



The external radar sensor (article: RS-1Z) from heddier electronic GmbH can be connected via this interface. Its compact design and the ability to easily penetrate non-conductive material allows for the simple, fast and concealed installation. Movements of persons are detected in the cone-shaped detection area up to a distance of 2.5 meters. The range can be directly controlled at the sensor.

Issues that can occur when using the IR motion detectors are eliminated when using the RS-1Z radar sensor. The sensor therefore does not respond to air currents from air conditioning systems or other thermal influences. **For further information about the sensor please go to www.heddier.com.**

(3) Connecting the NC Input

External sensors with NC output (NC = **N**ormally **C**losed) can be connected directly via this connection to the **Human Detector** module.

(4) NC Relay Output (use in wired alarm loop)

External devices can be switched via the relay output. Each alarm message (irrespective of the sensor) switches the relay output for 0.5 seconds. The indicated polarity must be observed. This also enables the use within a wired alarm loop. **The maximum load capacity is 50V and 0.25A DC.**

Note: Due to the increased power consumption, the relay and radar sensor support is only activated when the **Human Detector** module is active with external power supply. The batteries must be removed from the **Human Detector** module and the power supply must be connected. The connection of external devices to the NC relay output should be carried out by qualified personnel. A faulty connection could destroy the device.

(5) Power Supply 12V DC

Power supply to the **Human Detector** module is enabled with batteries. The Power supply can be switched to an external 12V DC supply, if required (see (7) Jumper switching battery/mains unit). The polarity of the power source must be observed and the batteries must be removed.

(6) On/Off Button

Switching on: Briefly press the button once. The status LED flashes green once and the acoustic alarm transmitter creates a short acoustic signal.

Switching off: Hold down the button for at least 5 seconds. The button can be released as soon as the status LED illuminates in red and the acoustic alarm transmitter creates a long acoustic signal.

Linking Human Detector Module with Human Detector Centre: The module needs to have been switched on. Briefly press the button once. The link has to be confirmed in the **Human Detector** software with the centre connected (see page 29, Getting Started and Starting-Up).

(7) Jumper Switch Battery/Power Supply

Jumping position 1-2 connected: The **Human Detector** Module is in mains operation. An external 12V DC voltage source must be connected.

Jumping position 2-3 connected: The **Human Detector** Module is in battery operation (standard operation).

(8) Batteries

The **Human Detector** Module is powered from two 3V lithium batteries. Battery type CR123 (alternatively CR123A or CR17345).

(9) Jumper Activation NC Relay Output

Jumper inserted: The NC relay output is activated and ready for operation (see page 11 (4) NC relay output).

Jumper removed: The NC relay output is deactivated (standard operation).

(10) Tamper Contact

The tamper contact triggers an alarm when activated. It is set to trigger when the housing is opened.

(11) Status LED

The status LED provides information on current events.

Switching on: LED flashes green once

Switching off: LED flashes red

Alarm signal: LED flashes red once

(12) DIP Switch Configuration of Sensors

The **Human Detector** Modules are configured via the DIP switches.

DIP switch

Function

1 + 2

Seismic Sensor:

DIP 1	DIP 2	Sensitivity
OFF	OFF	Sensor off
ON	OFF	low
OFF	ON	medium
ON	ON	high

3

Capacitive surface sensor:

DIP 3	Operating state
OFF	Sensor off
ON	Sensor on

4

NC input:

DIP 4	Operating state
OFF	Input deactivated
ON	Input activated

5

Radar Sensor:

DIP 5	Operating state
OFF	Sensor off
ON	Sensor on

6

LED function:

DIP 6	Operating state
OFF	LED function off
ON	LED function on

7 + 8

Continuous acoustic alarm:

DIP 7	DIP 8	duration
OFF	OFF	acoustic alarm off
ON	OFF	1 second
OFF	ON	5 seconds
ON	ON	10 minutes (see page 15 (14) system bus and alarm confirmation)

(13) Configuration of the Capacitive Sensors

The requirements to the capacitive sensor vary depending on size, material and type of the object to be monitored. Necessary adjustments therefore need to be carried out.

Capacities can be added with the DIP switch and increase or decrease the sensitive field around the object in a suitable combination. The triggering distance can therefore be defined and changed.

As a matter of principle: The larger the object and the larger the distance between the reference potential and the object, the larger the connected capacity must be. Combinations are permitted. In case of a lack of empirical values capacities should be added in ascending order (beginning with DIP switch 1 capacity 10nF).

This process should be performed until a suitable sensitivity has been found. Otherwise the potential equalisation may have to be adjusted.

DIP Switch	Capacity
1	10nF
2	22nF
3	47nF
4	47nF
5	100nF
6	220nF

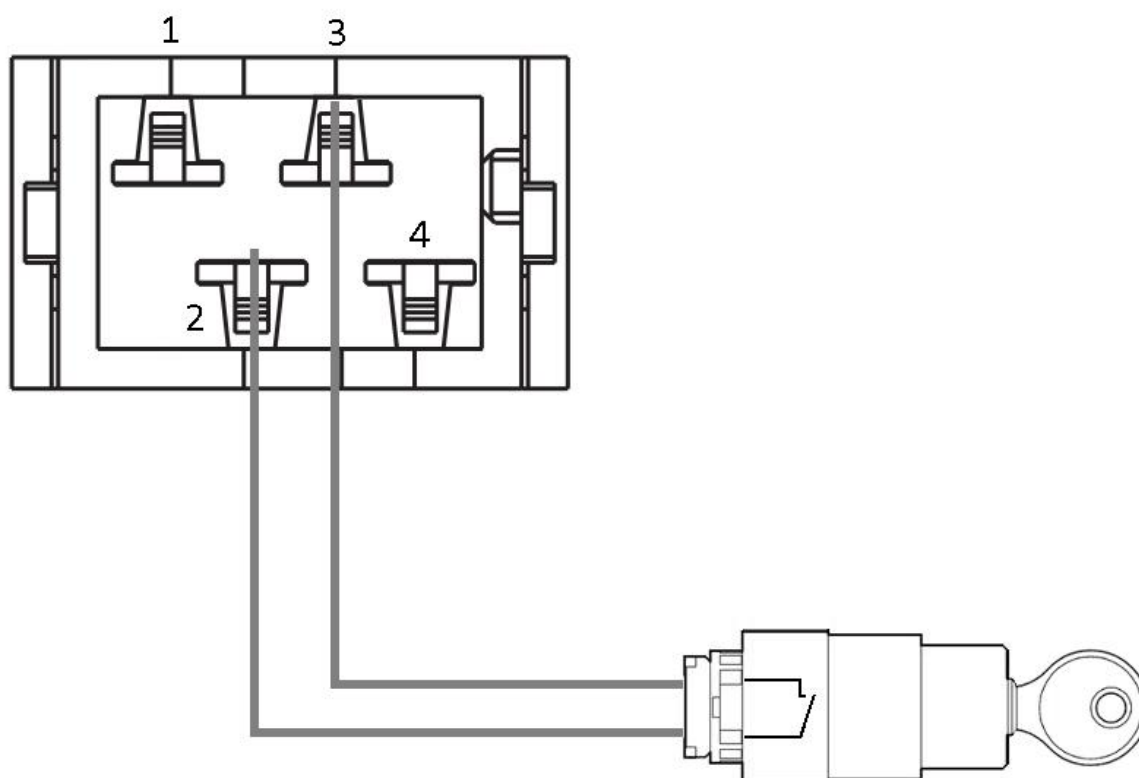
Note: If you are unable to find a suitable setting, contact your reseller. Your reseller is able to give advice and carry out the installation for you.

(14) System bus and alarm confirmation

By using alarm confirmation, you can protect your values even more. When a **Human Detector** module triggers the alarm, it can be deactivated by authorized staff only. Possible uses are the protection of showcases or paintings.

To configure a **Human Detector** module to use alarm confirmation, the module must not be connected to a power supply and build in batteries should be removed. Afterwards the acoustic alarm transmitter should be set to the maximum duration of 10 minutes (see page 14 (12) DIP Switch Configuration of Sensors) and a switch for deactivating the alarm (e. g. a key switch) must be connected to Pin 2 and 3 of the system bus (please refer to the plan below). To do so remove the red lid and connect the switch wires to the system bus. Finally put the red lid back on the connectors.

Important Note: Connecting electronic devices to the system bus should be done by qualified personnel only. Wrong handling could cause major damage and may destroy the **Human Detector** Module and connected devices.



(15) special functions**DIP switch Function**

1 **Human Detector self test**
Please contact your seller in case of fault.

2 **Radio module on / off**
Use this option to turn the radio module off. The **Human Detector** module stays in low energy mode now. If the radio module is turned off, no alarm signals are transmitted to the **Human Detector Centre**.

DIP 2	Operating state
OFF	Radio module off (Standalone operation)
ON	Radio module on (Network operation)

3 **Change NC relay output to NO relay output**

DIP 3	Operating state
OFF	NO operation (Normally Open)
ON	NC operation (Normally Closed)

4 - 8 **Not used**

Human Detector Centre

Installation of the Human Detector Centre

When positioning the **Human Detector** Centre ensure there is a reliable wireless connection between the **Human Detector** modules and **Human Detector** Centre. The range is about 300 meters in the open field.

The ground at the site of installation should be level, dry and able to take a load. The **Human Detector** centre should be resting firmly on solid ground to ensure the correct operation of the seismic sensors.

The centre is secured with a mounting plate with 4 screw holes.

Features of the Human Detector Centre

Seismic Protection: The **Human Detector** Centre can detect all kinds of vibrations. The sensitivity can be set to 3 levels. With this feature the **Human Detector** Centre is protected against tampering and manipulation.

Tamper Protection: Deliberate manipulation on the **Human Detector** Centre is considerably impeded with the help of the integrated tamper contact. The **Human Detector** Centre generates an alarm message as soon as the housing is opened or damaged.

Acoustic Alarm Device: The integrated acoustic alarm device with its loud buzzer provides an effective protection against manipulation. The acoustic alarm device is also used to signal alarms on the protected exhibits.

NC Relay Output: External devices can be switched via the NC relay output. It can also be integrated into a wired alarm loop.

Switching Outputs OC: External consumers can be switched via 8 open collector outputs.

RS485 Interface: The **Human Detector** Centre has a full duplex RS485 interface. It can be used to control external devices, e.g. surveillance cameras.

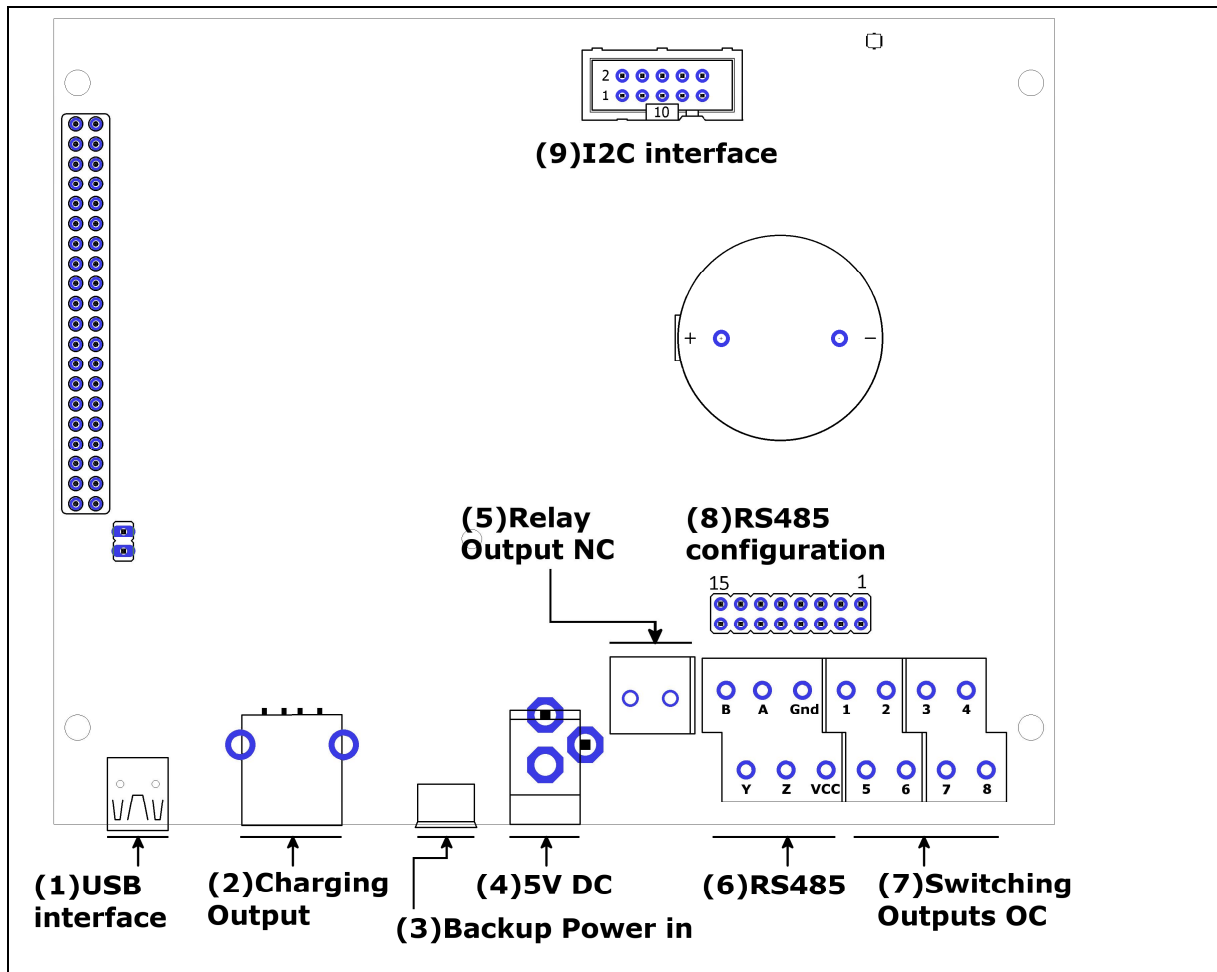
IP Interface: The **Human Detector** Alarm Centre can be integrated directly into your existing network for IP camera control. The **Human Detector** Alarm Centre is connected to the system with a standard network cable (RJ45).

USB Interface: The **Human Detector** Centre can be connected directly to Windows PC with a mini USB connector.

Camera Control: Alarms can directly control mobile and rigid monitoring cameras. Every **Human Detector** module can control up to three different cameras. Predefined camera positions allow for direct viewing of the monitored object in the event of an alarm.



Structure of the Human Detector Centre



(1) USB Interface

A mini USB connection is located in the **Human Detector** Centre. Reporting of alarm messages and setting of all parameters in the **Human Detector** software is done with the PC software via this interface.

(2) Charging Output

The charging output charges the battery via USB A interface. In case of power breakdown the **Human Detector** Centre is provided with power till it has safely shutted down. For long term power supply an external, uninterruptible power supply is needed.

Note: In the condition as supplied to the customer the battery is not connected to the charging output for security reasons. Please connect the USB A cable to the **Human Detector** Centre before starting operation.

(3) Backup Power input

In case of power breakdown the **Human Detector** Centre is provided with power till it has safely shutted down. For long term power supply an external, uninterruptible power supply is needed.

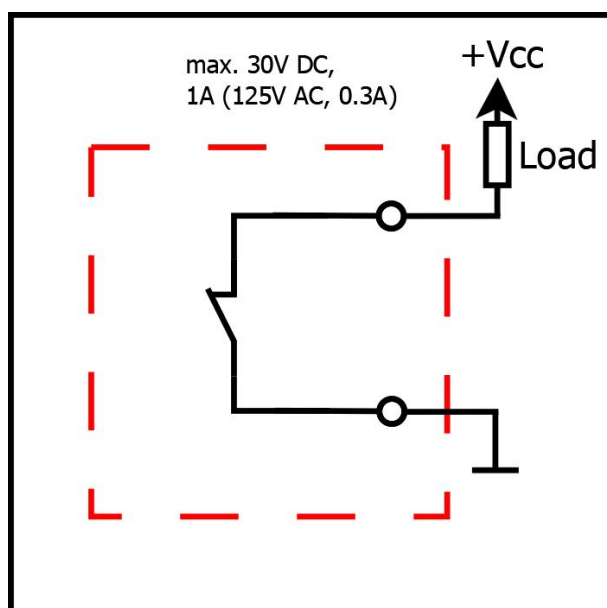
Note: In the condition as supplied to the customer the battery is not connected to the Backup power input for security reasons. Please connect the micro USB cable to the **Human Detector** Centre before starting operation.

(4) Power Supply 5V DC

The **Human Detector** Centre is powered by an external 5V DC power supply. The current capacity is not allowed to under run 4A. In the event of a power failure the supply can be maintained for a limited time via the battery.

(5) NC Relay Output (use in wired alarm loop)

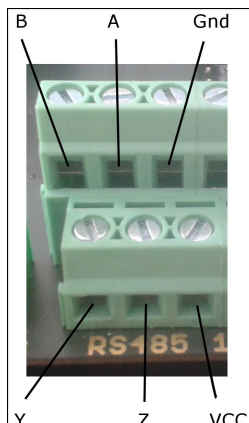
With the NC relay output external devices such as telephone diallers, alarm sirens, alarm systems, external warning lights, pagers and others can be triggered. **The maximum load capacity is 30V and 1A DC (125V, 0.3A AC)**. This output is tripped in case of alarm messages of the **Human Detector** Centre and the **Human Detector** modules (only if this has been set in the **Human Detector** software). The switching time is freely programmable with the **Human Detector** software.



Note: The connection of external devices to the NC relay output should be carried out by qualified personnel. A faulty connection can lead to the destruction of the device.

On the left you will find an example circuit.

(6) RS485 Interface

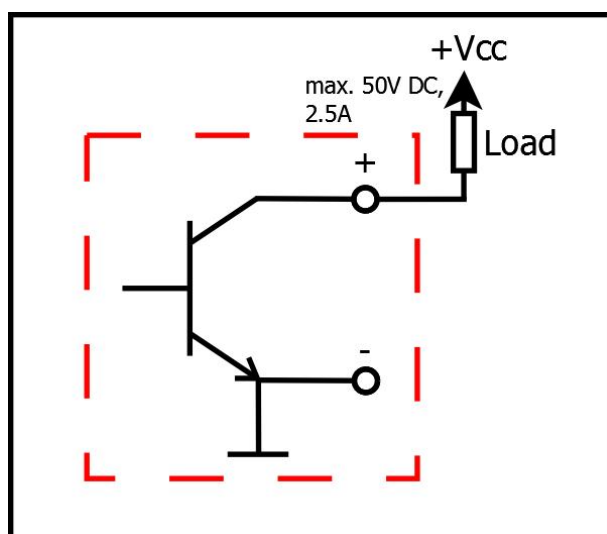


The full duplex RS485 interface can be used to control external devices, especially surveillance cameras. The interface parameters as well as separate commands (up to 12 byte) can be set in the **Human Detector** software.

Note: The connection of external devices to the RS485 interface should be carried out by qualified personnel. These are semiconductor switch outputs. A faulty connection can lead to the destruction of the **Human Detector** Centre and the surveillance cameras.

(7) Switching Outputs OC

The **Human Detector** Centre comprises 8 open collector outputs. These outputs are tripped in case of alarm messages of the centre and the modules (only if this has been set in the **Human Detector** software). The indicated polarity must be observed. The switching times for each output can be defined in the **Human Detector** software.


































































































































Note: The connection of external devices to the switching outputs OC should be carried out by qualified personnel. These are semiconductor switch outputs. A faulty connection can lead to the destruction of the device.

On the left you will find an example circuit.

(8) RS485 Configuration

<i>Jumper 1 inserted:</i>	Pull-up resistance wire A active
<i>Jumper 2 inserted:</i>	Termination resistance wire B active
<i>Jumper 3 inserted:</i>	Half-duplex operation (Y - A)
<i>Jumper 4 inserted:</i>	Pull-up resistance wire Y active
<i>Jumper 5 inserted:</i>	Termination resistance wire Z active
<i>Jumper 6 inserted:</i>	Pull-down resistance wire Z active
<i>Jumper 7 inserted:</i>	Half-duplex operation (Z - B)
<i>Jumper 8 inserted:</i>	Pull-down resistance wire B active

Half-duplex operation (Jumper configuration)			
Half-duplex	Half-duplex with termination resistance	Half-duplex with bus power	Half-duplex with termination resistance and bus power
1   2   3   4   5   6   7   8  	1   2   3   4   5   6   7  8  	1   2   3   4   5   6   7   8  	1   2   3   4   5   6   7   8  

Full-duplex operation (Jumper configuration)			
Full-duplex	Full-duplex with termination resistance	Full-duplex with bus power	Full-duplex with termination resistance and bus power
1   2   3   4   5   6   7   8  	1   2   3   4   5   6   7   8  	1   2   3   4   5   6   7   8  	1   2   3   4   5   6   7   8  

Important Note: The configuration of the RS485 bus must match the configuration of the monitoring cameras. Relevant information is provided by the manufacturers of the various camera systems. The RS485 configuration should only be carried out by qualified personnel.

(9) I²C interface

I²C interface for extend the **Human Detector** system with external devices. The interface is also used to communicate to systems of other manufactures.

Human Detector Software

Software Installation

The software is installed on the PC using the included USB stick. Follow the instructions of the installation wizard. The **Human Detector** software runs on Microsoft **Windows 7/8/10** based computer systems.

Opening of the Software - Password Query

The software can only be started with the **Human Detector** Centre connected via a USB cable. Each time the program is opened the user is prompted for a password. The password is permanently linked to the **Human Detector** Centre and is stored in it.

There are always two passwords. The passwords can be changed at any time.

Important Note: Depending on your password input the **Human Detector** software opens either in administrator or protocol mode.

Standard Password - Protocol Mode:	controller
Standard Password - Administrator Mode:	admin

Protocol Mode

In this mode there is only limited access to the **Human Detector** Centre. Only logs of alarm messages and control messages (heartbeats) of the **Human Detector** module can be viewed in real-time.

Note: Logging requires that a PC with the **Human Detector** software running is connected to the **Human Detector** Centre. The log is only saved on the connected PC. It is not saved in the **Human Detector** Centre.

Administrator Mode

In this mode the user has unrestricted access to all setting options of the **Human Detector** system and to the log.

Note: Please change the administrator password after the first start-up. This is advisable for safety reasons. The new password should consist of at least 6 characters.

The following menu items are available in the **Human Detector** software:

'File' Menu

Export of Databases

This menu item is used to back up the database of the local computer in any location. Follow the instructions of the installation wizard. The database is saved in .xhd-format.

Note: Only settings for module names, cameras and alarm groups are stored in the database. Other user defined settings and internal hardware addresses of the **Human Detector** modules are saved only in the **Human Detector** Centre for security reasons!

Import of Databases

With this menu item a previously exported database can be imported again. Settings for module names, cameras and alarm groups are restored. Follow the instructions of the installation wizard.

Important Note: The current database is overwritten. **All existing data is lost.** We recommend that you first carry out a backup (see "Exporting a Database").

Setting Storage Location

This menu item can be used to set the location of the database and logs. Follow the instructions of the installation wizard.

Important Note: A copy of the database and logs remains in the old location. The entries are not deleted automatically.

Finish

Closes the program and terminates logging.

'Language' Menu

Select the desired language.

Important Note: This menu may contain different languages depending on the software version.

'Help' Menu

User Manual

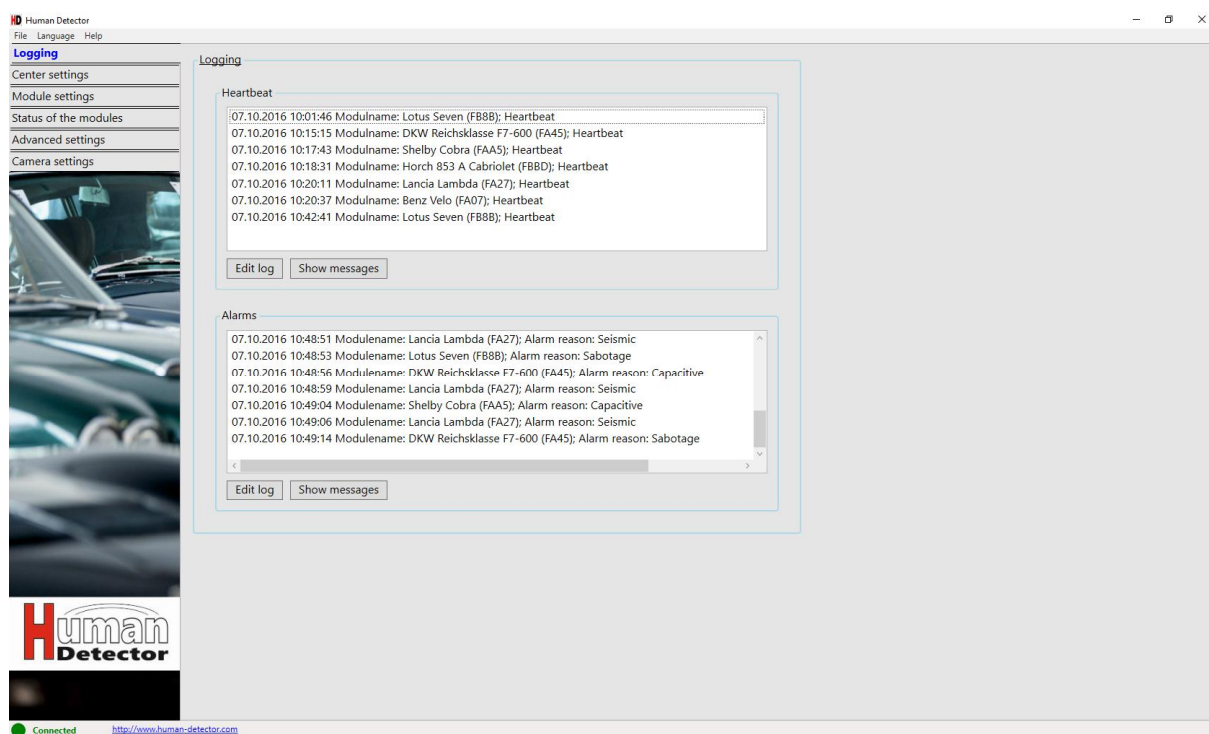
Opens this manual in .pdf-format in the desired language.

Info

Opens a window with software, version, address, and contact information.

System Menu 'Logging'

In this system menu both new and archived alarm messages and control messages (heartbeats) can be viewed. In log mode messages can only be viewed but not edited. Editing is only possible in administrator mode.



Editing the Log

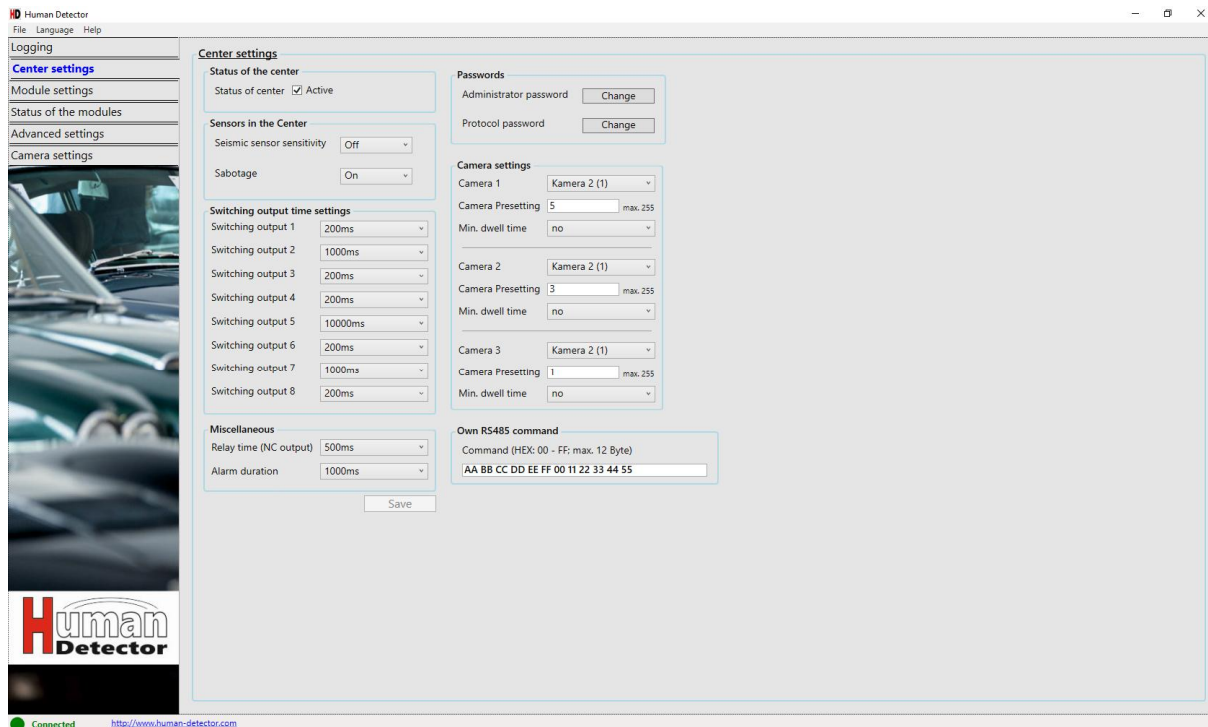
The log file is opened in the editor window. The file can be viewed and edited. Comments can be added to the log.

View/Hide Messages

Old messages can be shown and hidden as required.

System Menu 'Centre Settings'

All relevant settings to the **Human Detector** Centre can be made under this system menu. All changes to settings must be confirmed with the "Save" button.



Human Detector
File Language Help

Logging
Center settings
Module settings
Status of the modules
Advanced settings
Camera settings

Center settings

Status of the center
Status of center ☒ Active

Sensors in the Center
Seismic sensor sensitivity Off
Sabotage On

Switching output time settings
Switching output 1 200ms
Switching output 2 1000ms
Switching output 3 200ms
Switching output 4 200ms
Switching output 5 1000ms
Switching output 6 200ms
Switching output 7 1000ms
Switching output 8 200ms

Miscellaneous
Relay time (NC output) 500ms
Alarm duration 1000ms

Save

Passwords
Administrator password Change
Protocol password Change

Camera settings
Camera 1 Kamera 2 (1)
Camera Presetting 5 max. 255
Min. dwell time no
Camera 2 Kamera 2 (1)
Camera Presetting 3 max. 255
Min. dwell time no
Camera 3 Kamera 2 (1)
Camera Presetting 1 max. 255
Min. dwell time no

Own RS485 command
Command (HEX: 00 - FF; max. 12 Byte)
AA BB CC DD EE FF 00 11 22 33 44 55

Human Detector

Connected <http://www.human-detector.com>

Status Centre

The **Human Detector** Centre is only active with this option ticked. If the option is not ticked all sensors in the control panel are deactivated. However, triggered sensors are still detected, logged and marked as "inactive". Alarm messages of the **Human Detector** module are still processed as usual.

Seismic Sensor - Sensitivity

The seismic sensor can be switched off and its three sensitivity levels adjusted to 'low', 'medium' and 'high' in the drop down menu within the **Human Detector** Centre.

Tampering

The tampering contact of the **Human Detector** Centre can be activated and deactivated here.

Times - Switching Output

Each switching output OC 1 to 8 can be activated and deactivated via the drop-down menu. Alternatively, one of three predefined switching times can be assigned to each switching output. This can be set in the "Advanced Settings" menu. The corresponding switching outputs are activated in the event of an alarm by the **Human Detector** Centre.

Relay Time (NC Output)

The NC relay output can be deactivated via the drop-down menu. Alternatively, one of three predefined switching times can be assigned to the NC relay output. This definition can be made in the "Advanced Settings" menu. The NC relay output is activated in the event of an alarm by the **Human Detector** Centre.

Acoustic Alarm Duration

The acoustic alarm can be deactivated via the drop-down menu. Alternatively, one of three predefined switching times can be assigned for the acoustic alarm duration. This definition can be made in the "Advanced Settings" menu. The predefined acoustic alarm is triggered in the event of an alarm by the **Human Detector** Centre.

Editing Passwords

Both the administrator and protocol password can be customised. The new password should consist of at least 6 characters.

Camera Settings

Up to three surveillance cameras can be controlled in sequences in the event of an alarm in the **Human Detector** Centre.

Camera x: Cameras 1 to 3 can be activated and deactivated via the drop-down menu. Camera 1 to 3 represents a camera that previously has been set in the "Camera settings" system menu. Up to 256 different cameras can be set in the system menu. In the event of an alarm 3 cameras (camera 1, 2, and 3) can be activated from this set.

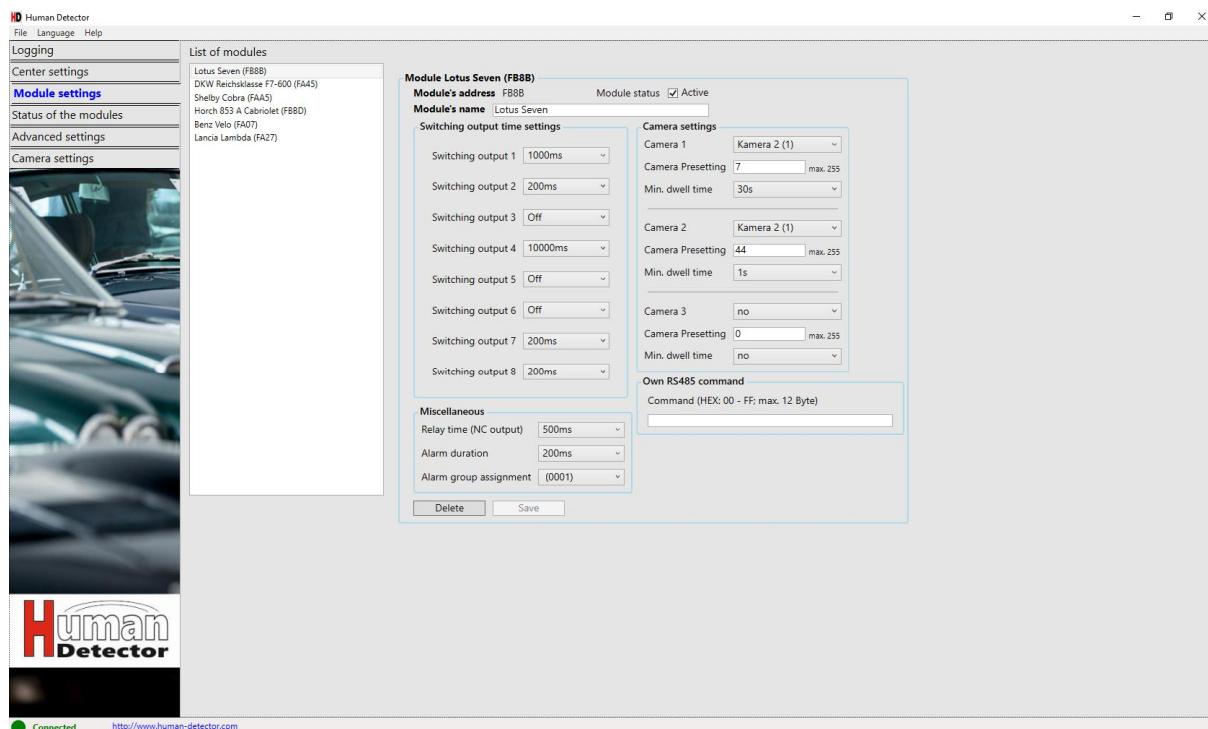
Camera position: Here predefined camera positions can be entered as a numerical value. These camera positions are activated in the event of an alarm. The camera positions are usually defined in the camera's web interface or by a PTZ camera control connected to the RS485 bus.

Min. dwell time: Here the minimum dwell times of the individual cameras are set. The drop-down menu can be used to assign one of three predefined dwell times. The predefined dwell times can be set in the "Advanced Settings" menu. This ensures that surveillance cameras will spend a minimum dwell time at a particular position in the case of several simultaneous alarms.

Custom RS485 command: In the absence of protocol support for connected camera systems, a separate RS485 hex command (up to 12 bytes) can be defined in the text field. This is transmitted in addition in the event of an alarm.

System Menu 'Module Settings'

All relevant settings to the **Human Detector** modules can be made under this system menu. Select the module settings you want to customize. All settings must be confirmed with the "Save" button.



Module Status

The selected **Human Detector** module is only active with this option ticked. If the option is not ticked, all interactions of the module with the **Human Detector** Centre are deactivated (for example, switching the open collector outputs in the **Human Detector** Centre). The module itself also does not generate an acoustic alarm. However, the triggering of the sensors of the **Human Detector** module is still recognized by the **Human Detector** Centre and is marked as "inactive" in the log.

Times - Switching Output

The **Human Detector** modules can be used to control the 8 switching outputs OC in the **Human Detector** Centre. Each switching output OC 1 to 8 can be activated and deactivated via the drop-down menu. Alternatively, one of three predefined switching times can be assigned to each switching output. This can be set in the "Advanced Settings" menu.

Relay Time (NC Output)

The **Human Detector** modules can be used to control the NC relay output in the **Human Detector** Centre. The NC relay output can be deactivated via the drop-down menu.

Alternatively, one of three predefined switching times can be assigned to the NC relay output. This can be set in the "Advanced Settings" menu.

Acoustic Alarm Duration

The **Human Detector** modules can be used to control the acoustic alarm in the **Human Detector** Centre. The acoustic alarm can be deactivated via the drop-down menu. Alternatively, one of three predefined times can be assigned to the acoustic alarm duration. This can be set in the "Advanced Settings" menu.

Alarm Group Allocation

Alarm groups can be created in the "Advanced settings" system menu. In the drop-down menu each **Human Detector** module can be allocated to an alarm group. The purpose of alarm groups is the collective activation and deactivation of a group of **Human Detector** modules. Erroneous alarm messages during maintenance work in a room with several secured objects for example can be prevented.

Removing Module

The connection between the **Human Detector** module and the centre can be cancelled with the "Remove" button.

Camera Settings

In the case of an alarm of the **Human Detector** module each of the three cameras are initiated in sequence and remain in their respective positions for the set dwell time.

Camera x: Cameras 1 to 3 can be activated and deactivated via the drop-down menu. Camera 1 to 3 represents a camera that previously has been set in the "Camera settings" system menu. Up to 256 different cameras can be set in the system menu. In the event of an alarm 3 cameras (camera 1, 2, and 3) can be activated from this set.

Camera position: Here predefined camera positions can be entered as a numerical value. These camera positions are activated in the event of an alarm. The camera positions are usually defined in the camera's web interface or with a PTZ camera control connected to the RS485 bus.

Min. dwell time: Here the minimum dwell times of the individual cameras are set. The drop-down menu can be used to assign one of three predefined dwell times. The predefined dwell times can be set in the "Advanced Settings" menu. This ensures that surveillance cameras will spend a minimum dwell time at a particular position in the case of several simultaneous alarms.

Custom RS485 command: In the absence of protocol support for connected camera systems, a separate RS485 hex command (up to 12 bytes) can be defined in the text field. This is transmitted in addition in the event of an alarm.

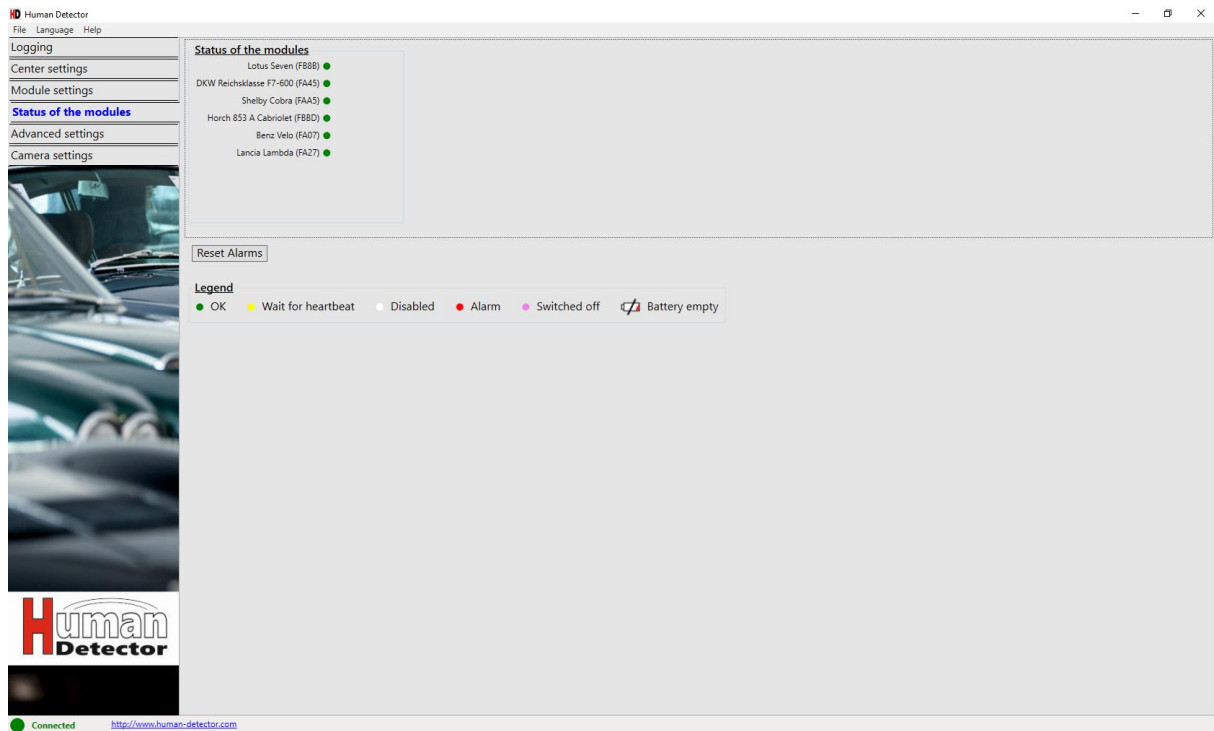
System Menu 'Module Status'

This system menu provides an instant overview of the status of all connected **Human Detector** modules. The display follows the traffic light principle.

Green All functions okay, no alarms since last reset

Yellow Waiting for Heartbeat

Red Alarm occurred in the past



Reset Alarms

Current alarm messages can be reset by using this button.

Key

Contains an explanation of the coloured status messages. These are listed in the list above after each **Human Detector** ID.

System Menu 'Advanced Settings'

Standard times, alarm groups, camera and RS485 interfaces are defined in this system menu. All settings must be confirmed with the "Save" button.

Standard Times

Standard times are defined for the 8 open collector outputs, the NC relay output, the acoustic alarm duration, and the camera dwell time. The set standard times can subsequently be used under "Centre Settings" and "Module Settings".

Alarm Groups

The "Add" button allows you to create new alarm groups. **Human Detector** modules can be assigned to these alarm groups under "Module settings". All modules of an alarm group can be activated and deactivated at the same time with the "Active" check box. This may be useful during maintenance work in a particular part of the building, for example.

Save: Save the current alarm group setting.

Remove: Delete the current alarm group.

Camera Interface

Define the interface parameters for the connected surveillance cameras. Select RS485 interface or alarm centre with IP interface (article HD-C/IP) for camera control.

RS485 Interface

Baud rate: Select the desired baud rate between 300 and 256000 baud from drop down menu.

Protocol: Selection of supported RS485 protocols.

Note: The set RS485 protocol also needs to be supported by the connected surveillance cameras. The **Human Detector** Centre supports various RS485 protocols. Within an installation, however, only one common RS485 protocol can be supported.

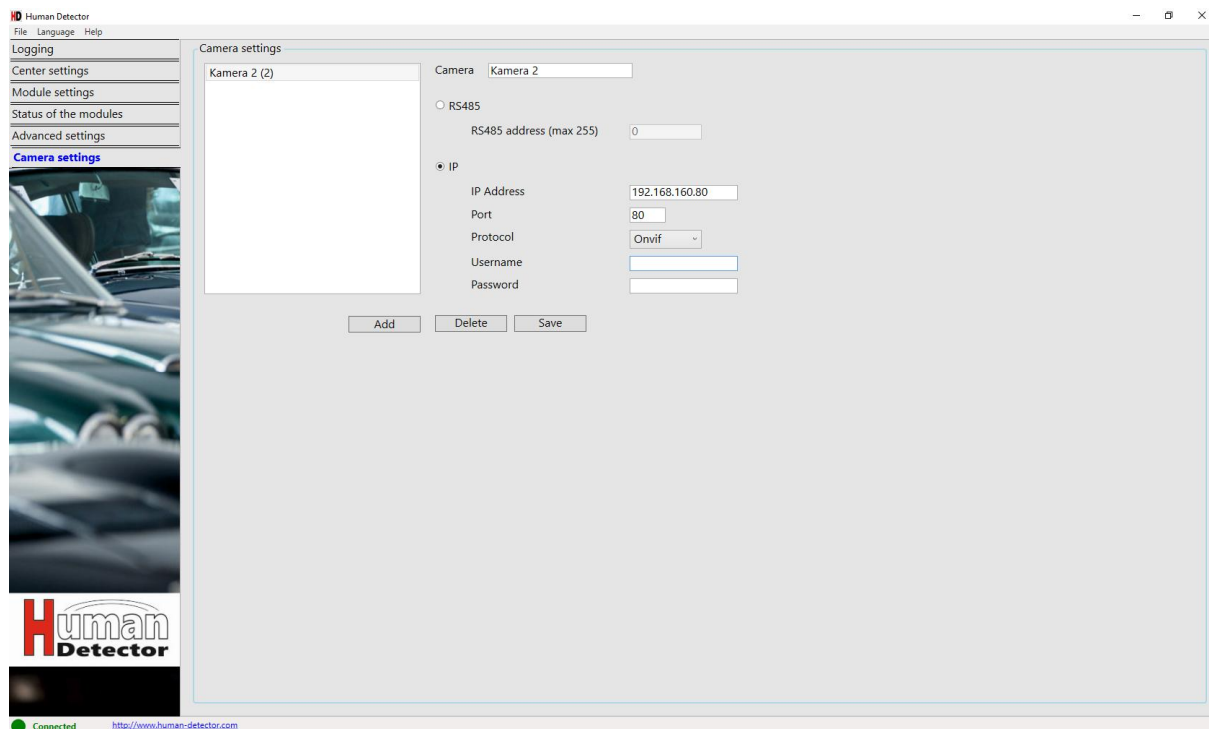
IP Box

IP address: Assign a network address to the alarm centre with an IP interface (e.g. 192.168.160.5). The alarm centre with IP interface can then clearly be identified in the network. The address may not have been assigned otherwise. If in doubt contact your network administrator.

Subnet mask: Enter the subnet mask here (e.g. 255.255.255.0). If in doubt contact your network administrator.

System Menu 'Camera Settings'

In this system menu cameras can be added or removed and camera settings made. All settings must be confirmed with the "Save" button.



Camera Settings

As a first step the camera name is defined in the "Camera" field (e.g. "Camera 2"). Then the camera control via RS485 or IP is defined, depending on the system. Select the relevant option here.

RS485: Enter the address of the RS485 camera. The address can be between 1 and 254. 255 is used as a broadcast address.

IP: First enter the IP address of the camera. Then define a permitted port number (e.g. 80 - HTTP). In the next step, select the protocol you want to use (usually Onvif). If your camera is protected by a user account, the user name and password needs to be entered.

The newly created camera can be saved with the "Add" button. It is then displayed in the text field on the left. Up to 256 cameras can be managed in the system.

Save: Saves all settings of the current surveillance camera.

Remove: The current surveillance camera is deleted.

Note: Diverging protocols are often combined under the name "Onvif". The **Human Detector** Alarm Centre with IP interface communicates with nearly all camera systems. Please do not hesitate to contact us if you have any questions regarding the support of protocols from specific manufacturers. We can make adjustments if required.

First Steps and Starting-up

After you have familiarised yourself with the technology of the **Human Detector** modules and centre you can now put a module into operation and then connect it to the control centre. You will quickly realise that these steps can be repeated as often as you like. Even already installed modules can be deleted, reconfigured and newly registered at any time.

Note: Before you finally install the **Human Detector** technology on the object to be monitored, we recommend that you perform various installation and configuration tests on test objects. We recommend to invest some time in this training phase. In the end your installation will benefit from this test phase and enable you to ensure the required technical feature.

If required we also offer training courses on how to use **Human Detector** security technology. Contact your reseller for more information where you can get advice on possible training courses.

Important Note: The changes to the DIP switches and connectors (jumpers) described in the following chapter are only to be carried out with the devices switched off. Changes with the devices switches on can result in malfunctions. These are only resolved after a restart (switching off and on). In particular severe circumstances the **Human Detector** equipment may be permanently damaged.

The following steps describe a simple start-up of the **Human Detector** modules and the connection to the **Human Detector** Centre. They show only one possible way for configuration. Please try other configurations as well. If these do not prove to be successful, you can revert to the old configuration at any time. Please refer to the relevant references in this installation guide.

Stand-Alone operation of the Human Detector Module with Seismic Sensor

Aim: Start-up without connection to the **Human Detector** Centre
Sensors: Seismic Sensor

- Open the housing of the **Human Detector** module by removing the four screws at the corners.
- Insert two suitable batteries. Two CR123 lithium batteries (or equivalent) should be used. Ensure the correct polarity of the batteries.
- Check whether the **Human Detector** module is switched off (see page 11 "On/Off Button"). If this is not the case, press the on/off button until the status LED illuminates permanently red.
- Set the DIP switch **(12) Configuration Sensors** to the following positions (see page 7 "Structure of the **Human Detector** Module").

DIP Switch	Function						
1 + 2	Seismic Sensor						
	<table><tr><td>DIP 1</td><td>DIP 2</td><td>Sensitivity</td></tr><tr><td>OFF</td><td>ON</td><td>medium</td></tr></table>	DIP 1	DIP 2	Sensitivity	OFF	ON	medium
DIP 1	DIP 2	Sensitivity					
OFF	ON	medium					
3	Capacitive Surface Sensor:						
	<table><tr><td>DIP 3</td><td>Operating state</td></tr><tr><td>OFF</td><td>Sensor off</td></tr></table>	DIP 3	Operating state	OFF	Sensor off		
DIP 3	Operating state						
OFF	Sensor off						
4	NC Input:						
	<table><tr><td>DIP 4</td><td>Operating state</td></tr><tr><td>OFF</td><td>Input deactivated</td></tr></table>	DIP 4	Operating state	OFF	Input deactivated		
DIP 4	Operating state						
OFF	Input deactivated						
5	Radar Sensor:						
	<table><tr><td>DIP 5</td><td>Operating state</td></tr><tr><td>OFF</td><td>Sensor off</td></tr></table>	DIP 5	Operating state	OFF	Sensor off		
DIP 5	Operating state						
OFF	Sensor off						
6	LED function:						
	<table><tr><td>DIP 6</td><td>Operating state</td></tr><tr><td>ON</td><td>LED function on</td></tr></table>	DIP 6	Operating state	ON	LED function on		
DIP 6	Operating state						
ON	LED function on						
7 + 8	Acoustic Alarm Duration:						
	<table><tr><td>DIP 7</td><td>DIP 8</td><td>Time in seconds</td></tr><tr><td>ON</td><td>OFF</td><td>0.5</td></tr></table>	DIP 7	DIP 8	Time in seconds	ON	OFF	0.5
DIP 7	DIP 8	Time in seconds					
ON	OFF	0.5					

- Insert the bolts and tighten, and switch on the **Human Detector** module. Briefly press the on/off button.
- If all steps have been performed correctly the **Human Detector** module will now signal vibrations with an acoustic alarm of 0.5 seconds.

Stand-Alone operation of the Human Detector Module with Capacitive Sensor

Aim: Start-up without connection to the **Human Detector** Centre

Sensors: Capacitive surface sensor

- Open the housing of the **Human Detector** module by removing the four screws at the corners.

- Insert suitable batteries. Two CR123 lithium batteries (or equivalent) should be used. Ensure correct polarity of the batteries.
- Check whether the **Human Detector** module is switched off (see page 11 “On/Off Switch”). If this is not the case, press the on/off button until the status LED illuminates permanently red.
- Connect a 1 metre flexible cable to port **(1) Capacitive Sensor** (see also page 7 “Structure of the **Human Detector** Module”).
- Set the DIP switch **(12) Configuration Sensors** to the following positions (see page 7 “Structure of the **Human Detector** module”).

DIP Switch	Function						
1 + 2	Seismic Sensor: <table><tr><th>DIP 1</th><th>DIP 2</th><th>Sensitivity</th></tr><tr><td>OFF</td><td>OFF</td><td>Sensor off</td></tr></table>	DIP 1	DIP 2	Sensitivity	OFF	OFF	Sensor off
DIP 1	DIP 2	Sensitivity					
OFF	OFF	Sensor off					
3	Capacitive Surface Sensor: <table><tr><th>DIP 3</th><th>Operating state</th></tr><tr><td>ON</td><td>Sensor on</td></tr></table>	DIP 3	Operating state	ON	Sensor on		
DIP 3	Operating state						
ON	Sensor on						
4	NC Input: <table><tr><th>DIP 4</th><th>Operating state</th></tr><tr><td>OFF</td><td>Input deactivated</td></tr></table>	DIP 4	Operating state	OFF	Input deactivated		
DIP 4	Operating state						
OFF	Input deactivated						
5	Radar Sensor: <table><tr><th>DIP 5</th><th>Operating state</th></tr><tr><td>OFF</td><td>Sensor off</td></tr></table>	DIP 5	Operating state	OFF	Sensor off		
DIP 5	Operating state						
OFF	Sensor off						
6	LED function: <table><tr><th>DIP 6</th><th>Operating state</th></tr><tr><td>ON</td><td>LED function on</td></tr></table>	DIP 6	Operating state	ON	LED function on		
DIP 6	Operating state						
ON	LED function on						
7 + 8	Acoustic Alarm Duration: <table><tr><th>DIP 7</th><th>DIP 8</th><th>Time in seconds</th></tr><tr><td>ON</td><td>OFF</td><td>0.5</td></tr></table>	DIP 7	DIP 8	Time in seconds	ON	OFF	0.5
DIP 7	DIP 8	Time in seconds					
ON	OFF	0.5					

- The DIP switches **(13) Configuration Capacitive Sensor** should be OFF. This relates to an additional capacity of 0 F.

- Insert the bolts and tighten, and switch on the **Human Detector** module. Briefly press the on/off button.
- If all steps have been performed correctly and you touch the sensor cable with your hand the **Human Detector** module will now signal this with an acoustic alarm of 0.5 seconds.

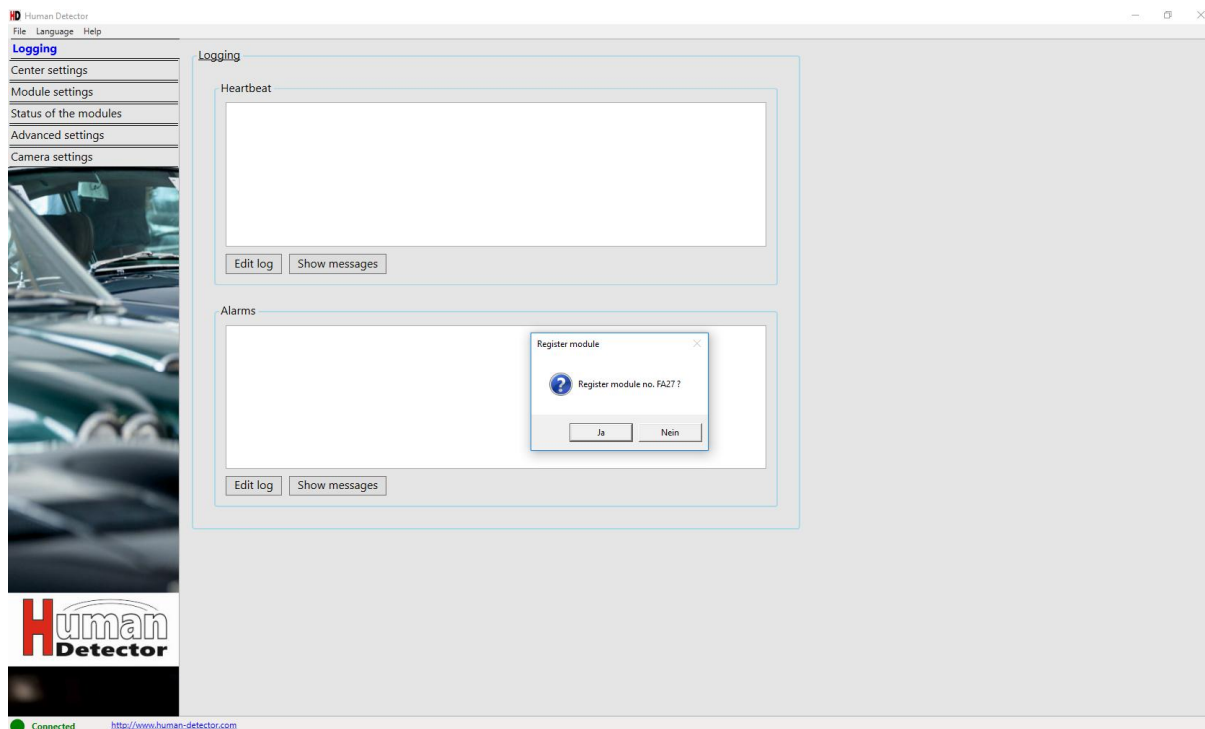
Note: You can test different capacities and sensor areas. Please note that the reference potential should be correctly scaled (see pages 8 and 9 “Connecting the Capacitive Sensor”).

Connecting Human Detector Module and Human Detector Centre

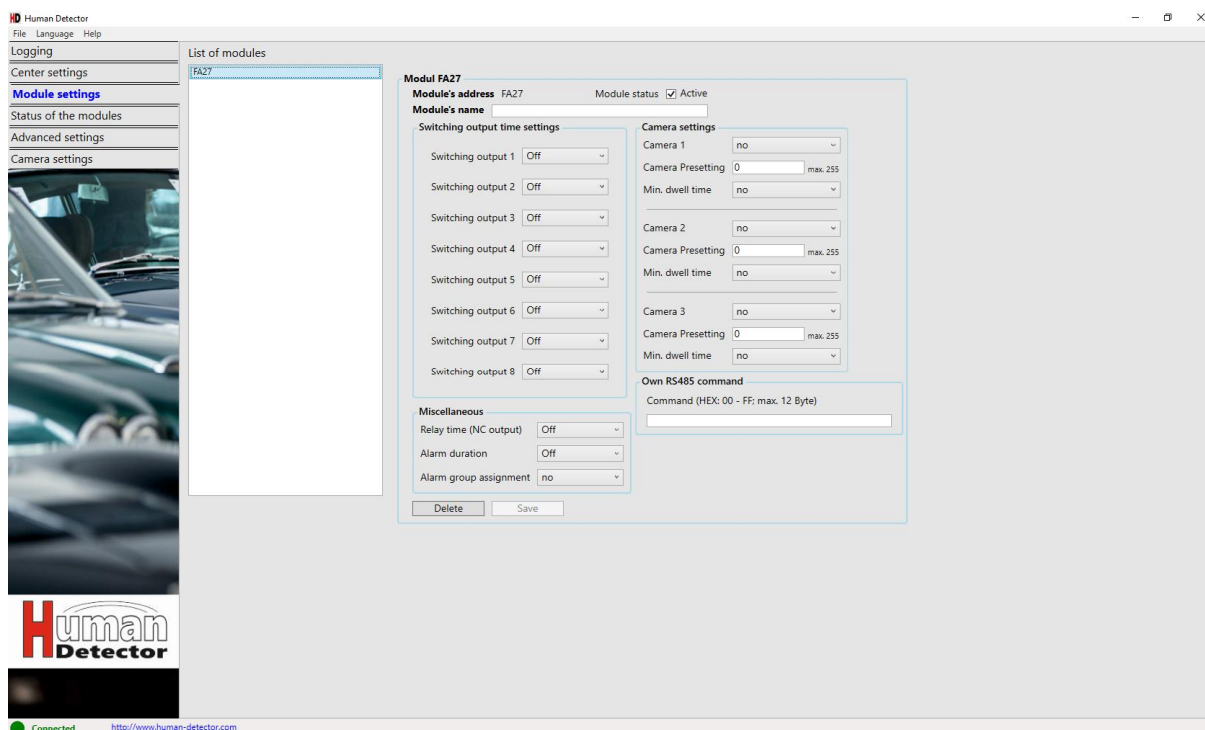
Aim: Connecting the **Human Detector** module and the Centre

- Leave the **Human Detector** module in a known and correctly functioning setting.
- Check whether the **Human Detector** module is switched off (see page 11 “On/Off Button”). If this is not the case, press the on/off button until the status LED illuminates permanently red.
- Install the **Human Detector** software from the supplied USB stick onto a PC with Windows 7, 8 or 10. Follow the instructions of the software installation wizard.
- Connect the **Human Detector** Centre with the set-up PC.
- Start the software and login as administrator using the standard password „**admin**“ (see page 19 “**Human Detector** Software”). You can view the various software features. The next step is to register a **Human Detector** module.
- Switch on a Human Detector module by briefly pressing the on/off button (see page 11 “On/Off Button”). Press the on/off switch briefly again. The **Human Detector** module attempts to connect with available **Human Detector** Centres.

Note: The 4-digit login code displayed on the next page is different for each **Human Detector** module. It represents a distinctive address of the module. It is therefore possible to distinguish between up to 1000 connected modules. The login code is provided by the manufacturer and can not be changed. To make work easier you can give the **Human Detector** module a clear name (e.g. *Statue Entrance Hall* or *Mercedes-Benz 300SL*).



- Confirm the login attempt to your **Human Detector** software by clicking the 'Yes' button.



- You can set the performance of the module in the event of an alarm in system menu "Module Settings". You can also give the **Human Detector** Module there a clear name (see page 24 "System Menu / Module Settings").
- For the first attempts we recommend to set the alarm tone duration to a well audible level.
- You can register additional **Human Detector** modules and configure each differently. Take some time to explore the various options of the software.
- Go to the System Menu - Logging. If all steps have been performed correctly all alarm messages of the **Human Detector** modules will be displayed here.

Warranty Conditions

The warranty period is 2 years from date of purchase. Different warranty conditions for commercial customers arise from the general terms and conditions of heddier electronic GmbH. In case of a warranty claim the user is entitled to return the device to the authorised distributor for repair. Proof of purchase must be presented to the distributor for each repair during the warranty period. The services included in the warranty cover costs for all required spare parts and labour.

The warranty does not cover improper use of the device. In addition any modifications to devices by unauthorized personnel results in a lapse of the warranty. The manufacturer is not liable for damages resulting from transport to the servicing workshop.

Procedure in Case of a Warranty Claim

The defective **Human Detector** components should be taken or delivered to the distributor in its original packaging box or in comparable packaging. No responsibility can be assumed for the safe delivery by the carrier. We therefore recommend to take out transport insurance to cover against loss, theft and damage.

Technical Data

Human Detector Centre (Article HD-C)

- Centralised control for **Human Detector** module (max. 1000)
- Secure, encrypted radio operation and large range with separate aerial
- Integrated sound generator for alerting sales staff (adjustable)
- RS485 interface to control external surveillance cameras
 - Baud Rates: 300 - 256,000 bau
 - Number of Devices: 32 (including **Human Detector** Centre), max. 256 at 1/8 load
 - Supported Protocols: Pelco P / Pelco D
- 8x Open-Collector switching outputs for the control of sirens, signal lights, etc. (maximum load 50V DC 0.25A)
- 1x relay switching output for the control of sirens, signal lights, etc. (maximum load 30V DC, 1A or 125V AC, 0.3A)
- Integrated battery for emergency operation in case of power failure
- USB interface for configuration, incl. **Human Detector** software Ge/En.
- Measurements of Housing for Wall Mounting: 139w x 210h x 58d in mm
- Weight: 765 grams (without power supply)
- Operating Voltage: 230V/50 Hz AC
- Operating Conditions: -15° to +45°Celsius, no condensing moisture
- Scope of Delivery: **Human Detector** Centre
 - Plug-in power supply prim. 90 - 240V AC, sec. 5V 4A DC
 - Human Detector** software for Windows 7/8/10 on USB stick
 - Operating instructions on USB stick

Human Detector Centre (Article HD-C)

- Compact sensor module for the detection of physical contact with objects
- Integrated seismic and capacitive sensors (adjustable sensitivity)
- Connection for optional radar sensor for free space monitoring
- Connection terminals for external sensor systems (e.g. motion sensors)
- Potential-free NC relay (extension for alarm systems and other devices) (maximum load 50V DC 0.25A)
- Long term operation with powerful lithium batteries
- Built-in sound generator (can be switched off if required)
- Radio operation with a large range of up to 300 metres in open space
- Easy to assemble and disassemble
- Dimensions Module Housing: 117w x 85h x 41d in mm
- Weight: 160 grams (including batteries)
- Operating voltage: 2 x lithium CR123 batteries or external 12V DC
- Power Supply
- Operating Conditions: -15° to +45°Celsius, no condensing moisture
- Scope of Delivery: **Human Detector** Module
 - 2x CR123 batteries
 - Operating instructions per internet download

Important Note: Exceeding the maximum ratings can lead to the destruction of **Human Detector** systems.

Specifications and Testing:

EN 300 220-1 V2.4.1 (2012-05)
EN 300 220-2 V2.4.1 (2012-05)
EN 301 489-1 V1.9.2 (2012-10)
EN 301 489-3 V1.4.1 (2002-08)
EN 60950-1: 2006 + A11: 2009 + A1: 2010
EN 62479: 2010
CE
WEEE 77437309

Further Information:

Changes to technical specifications and errors are reserved. The manufacturer reserves the right to change the specification of devices and components at any time without prior notice. The copyright of this document is the property of heddier electronic GmbH. Copies are only permitted with prior written consent.

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Pelco is a registered trademark of the Pelco Corp., USA.

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HD* = Human Detector