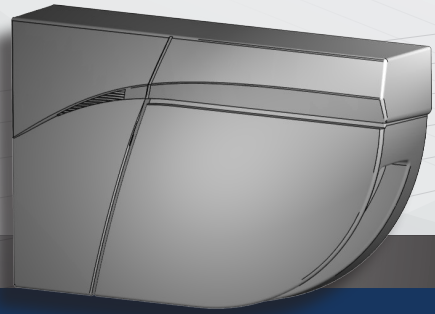




EN

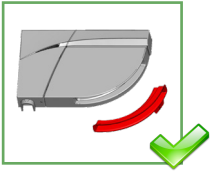


# HD-LSS4

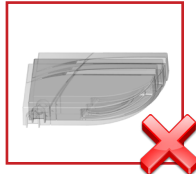
LASER SCANNER  
FOR EXHIBIT SECURITY AND BUILDING  
AUTOMATION

User's Guide

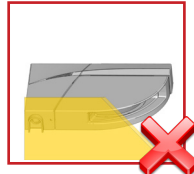
## INSTALLATION TIPS



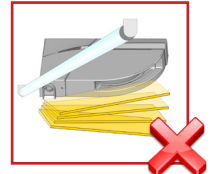
Remove the laser window protection before the commissioning of the sensor.



Avoid vibrations.



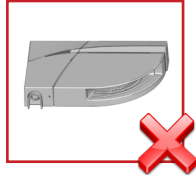
Do not cover the laser window.



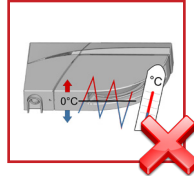
Avoid moving objects and light sources in the detection field.



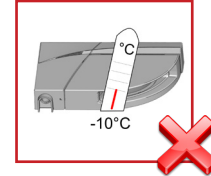
Avoid the presence of smoke and fog in the detection field.



Avoid condensation.

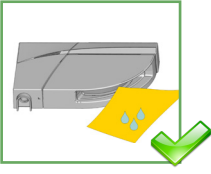


Avoid exposure to sudden and extreme temperature changes.



Keep the sensor permanently powered in environments where the temperature can descend below -10°C.

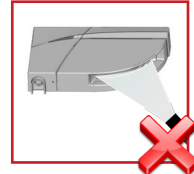
## MAINTENANCE TIPS



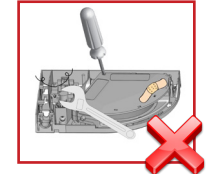
Clean the laser window with compressed air. If needed, wipe only with a soft, clean and damp microfiber cloth.



Do not use dry or dirty towels or aggressive products to clean the laser window.

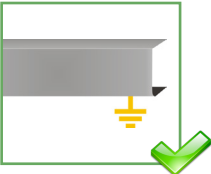


Avoid direct exposure to high pressure cleaning.



The warranty is invalid if unauthorized repairs are made or attempted by unauthorized personnel.

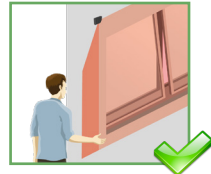
## SAFETY TIPS



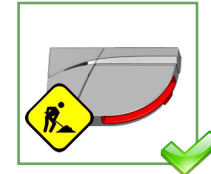
The controller and the supports must be correctly grounded.



Only trained and qualified personnel may install and setup the sensor.



Always test the good functioning of the installation before leaving the premises.



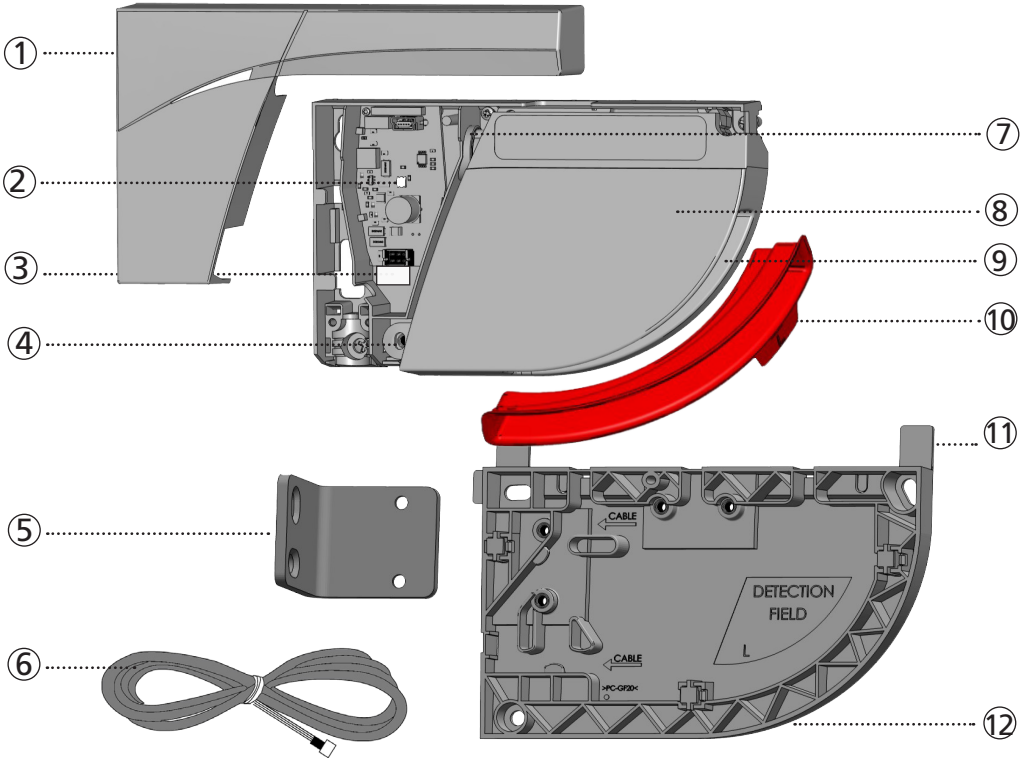
Do not remove the laser window protection when building works are still in progress on site.



- The customer needs to validate the functioning according to his specific application.
- The complete system provider is responsible for carrying out a risk assessment and installing the sensor.
- The system provider must check the compliance with applicable national and international regulations and standards.
- The manufacturer of the sensor cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor.





## DESCRIPTION

The HD - LSS4 is a safety sensor for the protection of artworks and exhibits.

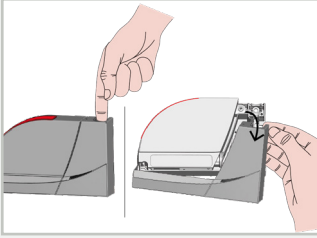


- |                           |                             |
|---------------------------|-----------------------------|
| 1. cover                  | 7. lock screw               |
| 2. LED                    | 8. laser head               |
| 3. main connector         | 9. laser window             |
| 4. angle adjustment screw | 10. laser window protection |
| 5. mounting bracket       | 11. positioning aids        |
| 6. power cable            | 12. mounting base           |

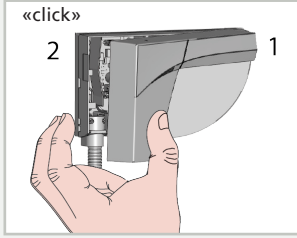
- |  |  |
|--|--|
|  1. Laser head initialisation         |  Output relay 1 activated (opening) |
|  2. Output relay 2 activated (safety) |  |

- |  |   |
|--|---|
|  1. Calculation in progress |  Define detection zone |
|  2. Exit the zone and wait  |  Errors                |

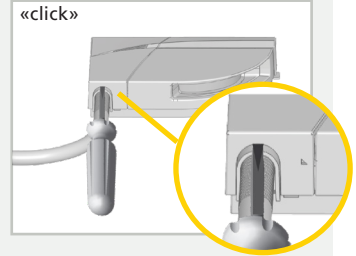
# ! OPENING AND CLOSING THE SENSOR



Remove the sensors' cover:  
1. Put your finger in the hole  
2. Pull firmly towards you in one movement.

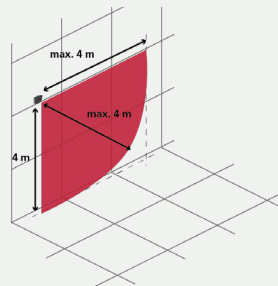
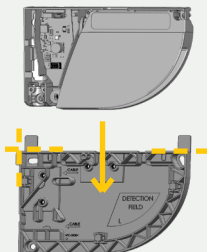
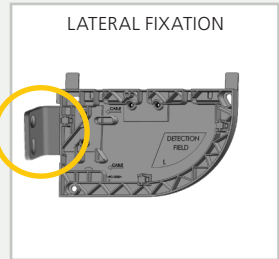
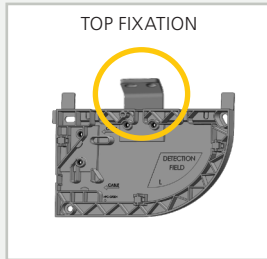
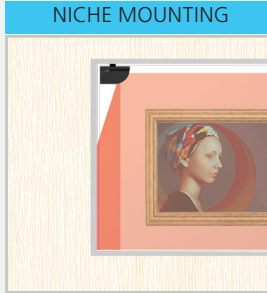
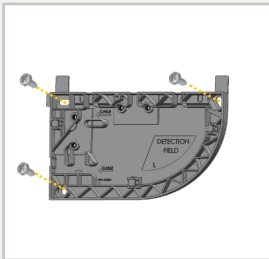


Close the cover starting on the narrow side (1). Do not hesitate to push (2).

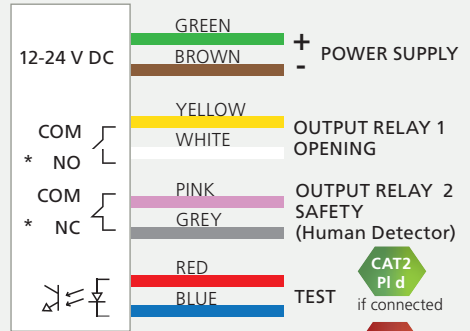
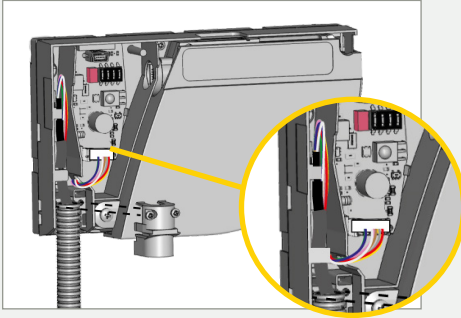


To open the sensor once fixed, position a screwdriver in the notch and pull upwards until the cover comes loose.

## 1 MOUNTING THE SENSOR



## 2 WIRING TO Human Detector alarm sensor



Make a loop with the wires of the power cable and pass them through the notch as indicated. Block the cable behind the notches.

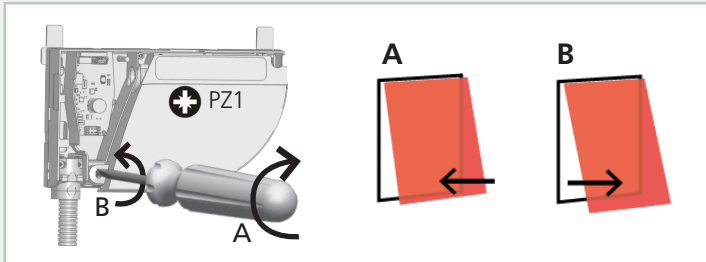
You can use the flexible cable to guide the cable.

\* Output status when sensor is operational.



Cut the power cable to the right length, strip the 8 wires and connect all wires as indicated. The polarity of the power supply must be respected!

## 3 ADJUSTING CURTAIN ANGLE



If necessary, adjust the tilt angle of the laser curtain by turning the tilt angle adjustment screw.

## 4 DIP-SWITCH SETTINGS



**DIP 1** BACKGROUND ANALYSIS

**DIP 2** IMMUNITY

**(DIP 3)** NOT USED

**DIP 4** EXTENDED ZONE

ON	OFF
ON	OFF
standard	critical
-	-
ON	OFF

Without background the sensor works with an uncovered zone of min. 2 cm and can also be mounted on moving surfaces.

Switch to CRITICAL when external disturbances are likely to cause unwanted detections (increased immunity).



ORANGE



OFF

After changing a DIP-switch, the orange LED flashes. A LONG push on the push button confirms the settings.

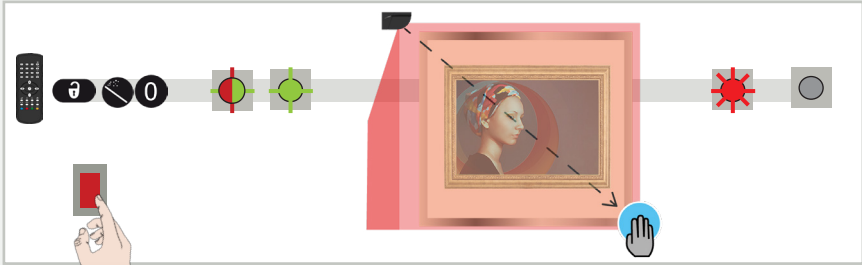
## 5 TEACH-IN



Before launching a teach-in, make sure that:

- the laser window protection is removed.
- other glass surfaces near the window are covered.

1. To launch a teach-in, press the push button briefly or use the remote control.
2. The LED will flash red/green. Wait until it slowly flashes green.
3. Position yourself in front of the window and stretch out your arm in the bottom corner opposite to the sensor in order to define the limit of the detection zone.
4. The LED flashes red while calculating the detection zone. Once the LED is off, the teach-in is complete.



### FREE SHAPE TEACH-IN

You can also set the detection field by launching a free shape teach-in. The shape and limit of the detection field is defined by a hand movement. You have 30 sec. to define the detection field with your hand.



### VIRTUAL PUSH BUTTONS

After either one of the previous teach-ins, you can add virtual push buttons (max. 10) in the detection field.

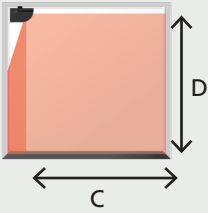
When the green LED flashes, hold your hand in the desired position to learn the virtual push button. The LED flashes red to confirm the teach-in. Remove your hand: when the LED flashes green you can either learn another virtual push button or wait 10 sec. until the end of the teach-in.



Launch a new teach-in each time the sensor position is changed or new objects are added to/changed in the detection zone.

## REMOTE CONTROL SETTINGS (OPTIONAL)

### DIMENSIONS WINDOW ZONE

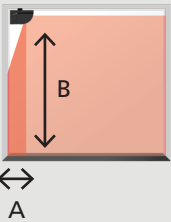


**C** ↔ 0 0 0 0 1 0 - 4 0 0  
no field 010 - 400 cm

**D** ⇕ 0 0 0 0 1 0 - 4 0 0  
no field 010 - 400 cm

A teach-in overwrites these values automatically. Resolution: 10cm

### DIMENSIONS EXTENDED ZONE



In order to change these settings by remote control, adjust DIP-switch 4 to ON

**A** ↔ 0 0 0 0 1 0 - 1 0 0  
no field 010 040 100 cm

**B** ⇕ 0 0 0 0 1 0 - 4 0 0  
no field 010 - 400 cm

A teach-in overwrites these values automatically. Resolution: 10cm

### IMMUNITY FILTER

In order to change these settings by remote control, adjust DIP-switch 2 to ON

1 2 3 4 5 6 7 8 9  
low > > > > > > high

Increase to filter out external disturbances.

### MIN. OBJECT SIZE (indicative values)

1 2 3 4 5 6 7 8 9  
2 4 6 8 10 12 14 16 18 cm\*

\* measured in specific conditions and dependant on application and installation.






### UNCOVERED ZONE WHEN BACKGROUND ANALYSIS IS OFF

F2 1 2 3 4 5 6 7 8 9  
2 4 6 8 10 12 14 16 18 cm\*

\* measured in specific conditions and dependant on application and installation.


 FACTORY VALUES

## REMOTE CONTROL SETTINGS (OPTIONAL)

OUTPUT CONFIGURATION	 <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">3</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">4</span>					
	R1 (opening)	NO	NC	NC	NO	NO POWER
R2 (safety)	NC	NO	NC	NO	NO DETECTION	 
					DETECTION	 

NO = normally open  
NC = normally closed

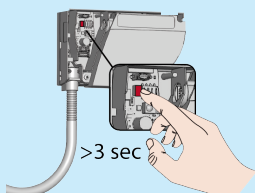
REDIRECTION OF EXTENDED ZONE	<span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">F1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">3</span>		
		R1	R2

GENERAL	 <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">0</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">1</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">2</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">8</span> <span style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">9</span>				
		teach-in	teach-in free shape	teach-in virtual push buttons	full reset
				Factory reset of all values	Factory reset of all values except field dimensions & output configurations

FACTORY VALUES



## SERVICE MODE



The service mode deactivates the safety detection during 15 minutes and can be useful during an installation, a mechanical teach-in of the window or maintenance work.

To enter the service mode, push on the button for at least 3 seconds.

When the sensor is in service mode, the LED is off.

To exit the service mode, push again for at least 3 seconds.

The service mode is automatically deactivated when launching a teach-in.



# HOW TO USE THE REMOTE CONTROL



After unlocking, the red LED flashes and the sensor can be adjusted by remote control.



If the red LED flashes quickly after unlocking, you need to enter an access code from 1 to 4 digits. If you do not know the access code, **cut and restore the power supply**. During 1 minute, you can access the sensor without introducing any access code.



To end an adjustment session, always lock the sensor.



It is recommended to use a different access code for each module in order to avoid changing settings on both modules at the same time. The access code is recommended for sensors installed close to each other.

## SAVING AN ACCESS CODE

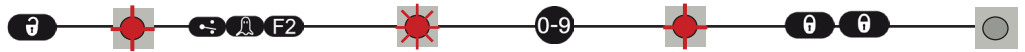


## DELETING AN ACCESS CODE



Enter the existing code

## ADJUSTING ONE OR MORE PARAMETERS



## CHECKING A VALUE



x = number of flashes = value of the parameter

Example: = field width: 2.35 m



## RESTORING TO FACTORY VALUES



## TROUBLESHOOTING

 	The RED or GREEN LED is ON sporadically or permanently and the window does not react as expected.	Unwanted detections (due to environment changes or external conditions)	1	Make sure the flexible cable does not cause detections.
			2	Has there been changes in the environment? New objects ?
			3	Verify if the laser window is dirty and clean it with compressed air. Then wipe it carefully with a damp and clean microfibre cloth if necessary (attention: the surface of the laser window is delicate)
			4	Launch a new teach-in.
			5	Switch DIP 2 to off (critical environment).
	The sensor does not react at power-on.	Inverted power supply	Check wiring (green +, brown -).	
		Faulty cable	Replace cable	
		Faulty sensor	Replace sensor	
The sensor does not react when powered.	Test error	Check voltage between red and blue wires.		
	The service mode is activated.	Press the push button during at least 3 seconds to exit the service mode.		
	It is not possible to adjust a setting by remote control.	Wrong DIP-switch position.	Adjust the required DIP-switches to ON.	
		The sensor is protected by a password.	Enter the right password. If you forgot the code, cut and restore the power supply to access the sensor without entering a password during 1 minute.	

## TROUBLESHOOTING

	The ORANGE LED is on permanently.	The sensor encounters a memory problem.		Send the sensor back for a technical check-up.
	The ORANGE LED flashes quickly.	DIP-switch setting awaiting confirmation.		Confirm the DIP-switch setting: long push on the push button.
	The ORANGE LED flashes 1 x every 3 seconds.	The sensor signals an internal fault.		Cut and restore power supply. LED flashes again, replace sensor.
	The ORANGE LED flashes 2 x every 3 seconds.	Power supply is out of limit.	1	Check power supply (voltage, capacity).
		Internal temperature is too high.	2	Reduce the cable length or change cable.
				Protect the sensor from any heat source (sun, hot air...)
	The ORANGE LED flashes 3 x every 3 seconds.	Communication error		Check internal wiring between interface card and laser head.
	The ORANGE LED flashes 4 x every 3 seconds.	Something close to the sensor is masking part of the detection field.	1	Remove all masking elements (insects, spider web, flexible tube, window protection).
			2	Verify if the laser window is dirty and clean it with compressed air. Then wipe it carefully with a damp and clean microfibre cloth if necessary (attention: the surface of the laser window is delicate)
			3	Check that the laser window is not scratched. If this is the case, replace the laser scanner.
	The ORANGE LED flashes 5 x every 3 seconds.	Teach-in error	1	Check whether all teach-in requirements are fulfilled and launch a new teach-in.
			2	Adjust the tilt angle and launch a new teach-in.

## TECHNICAL SPECIFICATIONS

<b>Technology</b>	Laser scanner, time-of-flight measurement, background analysis
<b>Detection mode</b>	Presence
<b>Max. detection range</b>	4 m (diagonal) with reflectivity of 2% (i.e. : at W = 3.7 m -> max. H = 1.5 m)
<b>Number of planes</b>	1
<b>Number of points</b>	400
<b>Angular resolution</b>	0,27°
<b>Angular coverage</b>	108 °
<b>Min. object size</b>	2 cm (depending on the settings)
<b>Emission characteristics</b>	IR LASER: Wavelength 905 nm; max. output pulse power 25 W; Class 1
<b>Supply voltage</b>	12-24V DC ± 15%
<b>Power consumption</b>	≤ 2 W
<b>Typ. response time</b>	400 ms
<b>Peak current at power-on</b>	0.8A (max. 20 ms @ 24 VDC)
<b>Cable length</b>	5 m
<b>Output</b> Max. switching voltage Max. switching current	2 solid state relays (galvanic isolation - polarity free) 42V AC/DC 100 mA
<b>Input</b> Max. contact voltage Voltage threshold	1 optocoupler (galvanic isolated - polarity free) 30 V DC (over-voltage protected) Log. H: >8 V DC; Log. L: <3 V DC
<b>LED-signals</b>	1 Tri-coloured LED: detection/output status
<b>Dimensions</b>	142 mm (L) × 85 mm (H) × 33 mm (D) (mounting base + 14 mm)
<b>Material - Colour</b>	PC/ASA - Black - Aluminium - White
<b>Tilt angles</b>	-2° to +6° (with mounting base) +2° to +10° (without mounting base)
<b>Protection degree</b>	IP54 [EN 60529]
<b>Temperature range</b>	-30°C to +60°C if powered; -10°C to +60°C without power
<b>Humidity</b>	0-95 % non-condensing
<b>Vibrations</b>	< 2 G
<b>Norm conformity</b>	EN 61000-6-2 EMC - Industrial EN 61000-6-3 EMC - Industrial EN 60950-1; EN 60825-1 Laser Class 1; EN 50581

*Specifications are subject to changes without prior notice.*

*All values measured in specific conditions.*

THIS USER'S GUIDE IS AN INFORMATIVE DOCUMENT AND CAN NOT BE SEEN AS A COMMITMENT OF RESULT.

\* For other options, please contact heddier electronics



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heddierelectronic hereby declares that the HD-LSS4 is in conformity with the basic requirements and the other relevant provisions of the directives 2014/30/EU, 2014/35/EU and 2011/65/EU.