

**Model: HDF-OPTICAL**

**SENSOR MODULE FOR CONTACTLESS PROTECTION OF PAINTINGS**

Commercial datasheet



Approximate actual size

**SECURITY TECHNOLOGY FOR MUSEUMS AND EXHIBITIONS**

**DESCRIPTION**

The ultra-compact **HDF-OPTICAL** sensor module can be easily installed behind paintings and pictures. It is fixed to the wall behind the object. A low-energy IR signal is emitted twice per second. The reflection is monitored. If any changes occur, an alarm is triggered. This enables detection, in case the picture is removed. The low energy, the very short pulse time and the large-area distribution of the IR rays prevent damage to the back of the painting to be monitored. **HDF-OPTICAL** can be used both for pictures hanging on gallery rails and for wall-mounted pictures. The integrated 868-Mhz transmitter module achieves a high range even in solid buildings such as castles and palaces. The **Human Detector Flex** sensor **HDF-OPTICAL** can be combined with all alarm and voice output devices (such as **HDF-BUZZER** and **HDF-SPEECH**) and the alarm monitoring unit **HDF-AMD**.

**HDF-OPTICAL** secures:

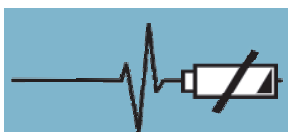
- Paintings and pictures
- Reliefs

Thanks to the compact design and the simple mounting, the **HDF-OPTICAL** sensor can be quickly mounted on the wall behind the object to be protected. The large range of the integrated radio module enables uninterrupted monitoring in large buildings.





High range in buildings



Battery monitoring



Mains and battery operation



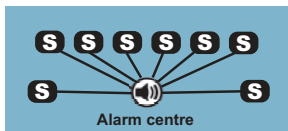
Secure wireless transmission



Simple mounting



Invisible protection of paintings

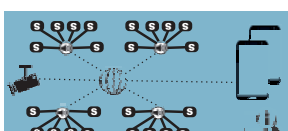


Alarm centre

EASY-Mode - starter class



MULTI-Mode - medium class



PROFI-Mode - premium class



## TECHNICAL SPECIFICATIONS

|                               |  |
|-------------------------------|--|
| <b>Technology</b>             | Wireless sensor module for optical monitoring of paintings   |
| <b>Detection method</b>       | IR reflectance measurement with low energy density   |
| <b>Emphatic installation</b>  | Concealed installation behind the picture or frame   |
| <b>Transmission frequency</b> | 869,5 MHz  |
| <b>Transmission power</b>     | + 15 dBm   |
| <b>Range</b>                  | Up to 1500 m in open area, good penetration of walls due to modulation with frequency spread spectrum modulation *1  |
| <b>Supply voltage</b>         | 3 V lithium battery CR2450 changeable, external supply voltage 8-14 V AC/DC *2   |
| <b>Supply current</b>         | Typ. 2 µA standby, 20 mA measuring, 50 mA transmission, 42 µA on average   |
| <b>Response time</b>          | Typically 50 ms for complete transmission  |
| <b>Other functions</b>        | Concealed micro switch for switching on and off<br>Micro push-button for linking individually and for test mode<br>IR transmitter and receiver unit (detection range up to 25 mm)<br>Automatic microprocessor controlled calibration<br>Battery life up to 20 months *3<br>Monitoring strength of receive signal<br>Monitoring battery voltage (alarm before end of battery life)<br>All operating modes supported (EASY-, MULTI- and PROFI-Mode) *4 |
| <b>LED</b>                    | 3 mm LED red indicating radio operation, 3 mm LED green indicating program function  |
| <b>Dimensions</b>             | 70,4 mm (L) x 50,4 mm (W) x 17 mm (H)  |
| <b>Weight</b>                 | Approx. 41 grams including battery   |
| <b>Material of casing</b>     | Impact-resistant plastic ABS UL94V-1   |
| <b>Protection class</b>       | IP20 (EN 60529)  |
| <b>Temperature range</b>      | -10° C to +60° C if powered  |
| <b>Humidity</b>               | 0-95%, non-condensing  |
| <b>Conformity</b>             | EN 61000-6-2; EN 61000-6-3; EN 62368-1; EN 63311<br>ETSI EN 301489-1, ETSI EN 301489-3, ETSI EN 300220-2; EN 63000 (RoHS)  |

\*1 The range achieved may vary depending on the spatial conditions. All measurements carried out with standard module antenna.

\*2 We reserve the right not to ship the CR2450 lithium button cells in case of airfreight. A credit note will be issued therefore.

\*3 The specified value is approximate. The service life may change depending on alarm frequency, temperature and battery age.

\*4 For more information on the various operating modes, please refer to the separate data sheets.

Specifications are subject to change without prior notice. All measurements were performed under specific conditions.

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