

Specifications

ODS *Black-Line* 2 kHz series:

1, 5 & 10 kHz versions are available in all models of the ODS Black-Line sensor family.

HT / High target temperature (1000°C) versions and VHT (1300°C) as well as VVHT (1500 up to 2200°C) are also available.



| Models Select-2: | ODS 115 | ODS 150 | ODS 200 | ODS 260 | ODS 450 | ODS 750 |
|--|------------------------------|--------------------------------------|---|-----------------------|---------------|---------------|
| Measurement data: | | | | | | |
| Measuring range (FS) | 30 mm | 100 mm | 200 mm | 300 mm | 500 mm | 700 mm |
| Measuring range | 100-130 | 100-200 | 100-300 | 110-410 | 200-700 | 400-1100 |
| Center distance | 115 mm | 150 mm | 200 mm | 260 mm | 450 mm | 750 mm |
| Resolution at short distance *) | 0.001 mm | 0.002 mm **) | 0.01 mm | 0.01 mm | 0.1 mm | 0.1 mm |
| Resolution at long distance *) | 0.002 mm | 0.005 mm **) | 0.05 mm | 0.05 mm | 0.2 mm | 0.3 mm |
| Linearity *) | ± 0.030 mm | ± 0.050 mm | ± 0.10 mm | ± 0.20 mm | ± 0.3 mm | ± 0.7 mm |
| Updating frequency ***) | 2 kHz | 2 kHz | 2 kHz | 2 kHz | 2 kHz | 2 kHz |
| Temperature deviation | ± 0.03% FS/C° | ± 0.03% FS/C° | ± 0.03% FS/C° | ± 0.03% FS/C° | ± 0.03% FS/C° | ± 0.03% FS/C° |
| Light source (nm) | LASER (655) | LASER (655) | LASER (655) | LASER (655) | LASER (655) | LASER (655) |
| Size of spot | Ø 0,5 mm | Ø 0,5 mm | Ø 0,5 mm | Ø 0,5 mm | Ø 1 mm | Ø 2 mm |
| Laser protection class | IEC 2 | IEC 2 | IEC 2 | IEC 2 | IEC 2 | IEC 2 |
| Output data: | Electrical data: | Environment data: | | Physical data: | | |
| Analog output ***): 4-20 mA or 1-9 V DC | Supply voltage: 22 - 36 VDC | Operating temperature: 0 - +45 C° | Dimensions: 136*146*50mm | | | |
| Digital output ***): RS232 or RS422 | Power consumption: max 4.5 W | Storage temperature: -20 - +70 C° | Weight excl. Cable: 1600 g | | | |
| Ethernet output ☒): Alternative to RS output | 1 kHz output frequency | Humidity non condensing: Max 90 % RH | Cable length: 2.5 m | | | |
| Baud rates are selectable Baud rate: 38400 ***): | 2 kHz output frequency | Degree of protection: IEC IP65 | Housing: Steel/ Aluminum/ Glass Windows | | | |
| Default setting: Baud rate: 115200 ***): | | | | | | |

*) Static measurement on white paper at measuring frequency of 2 kHz, without any averaging of the output signals. Resolution = 2 x Standard deviation.

**) Data for digital output. Analog outputs Resolution & Reproducibility < 0.050 mm for ODS 150. 14 Bit DAC's are used for the conversion.

***) Serial/Digital signal and analog output are updated at the measuring frequency of 2kHz (or 1, 5 & 10 kHz) except if the Simple Average Filter is set to be active.

☒) The Ethernet interface option can be used for distance measurement only.

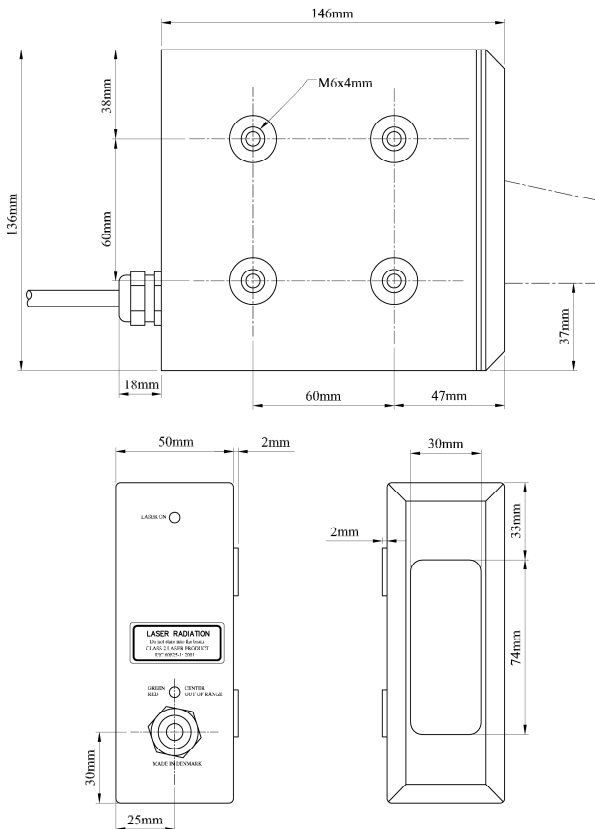
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Measuring frequency 2 kHz

Output rates are user specified, as the sensor can be programmed to make an average of up to 200 measurements and output it as a single point.

All ODS Black-Line 2 kHz sensors have a programming/Select functionality. Group Mode is the main feature. In Group Mode a running average is calculated over a user specified number of measuring points. The user also programs the sensor to disregard a number of, usually all, bad (zero) measuring points before calculating the average value. The average values are calculated at full measuring frequency and are used for converting the analog signal(s). Several Median filters and other options like Level Mode available.



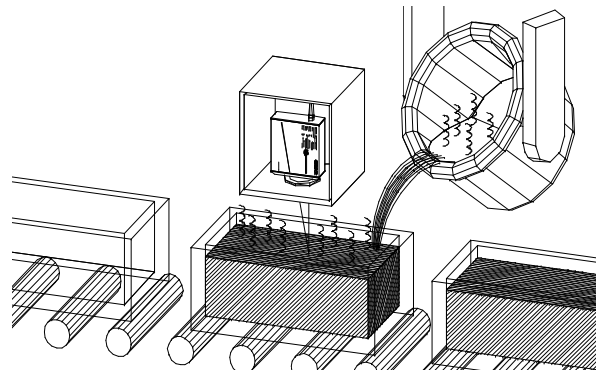
ODS High Temperature models

The HT models are designed for target surfaces temperatures up to 1000 °C. The VHT models are designed for surface temperatures up to 1300 °C. The VVHT models are designed for target temperatures up to 2.200 °C using a **BLUE laser diode**.

Because of the non-contact measurement method, the ODS xxx HT sensors are specially designed for measurement on objects that are more than 450 °C hot like hot rolled steel or molten metals and glass. Laser class 2 sensors achieve target temperature up to 1.000 °C. VHT models can in laser class 3R form reach target temperatures of generally up to 1.300 °C and some can in 3B form reach even higher. When using a Blue laser diode at 405 nm wavelengths up to 2.200 °C can be achieved.

It is important to stress, that the HT specification only concerns the target temperature. Maximum sensor environment temperature is 45 °C.

The HT specification can also be necessary when there is a risk of harmful false light as is the case with bright sunlight, both direct and reflected.



ODS Thickness Measurement

ODS Black-Line sensors are calibrated for measuring thickness when paired.

An ODS Black-Line sensor will automatically turn itself into being either the Master or the Slave half part of a thickness measuring system when connected to an identical ODS sensor model.

The Master sensor reads the digital distance data send from the Slave sensor over their RS232 or RS422 serial interfaces, and after taking its own distance information into account, it will output the change in thickness in its calculated digital form as well as a converted analog signal. The sensors must always be synchronized, and will measure on transparent targets alternately from one side if they are wired to measure at 1 kHz (half) frequency.

A couple of ODS sensors will thus measure thickness or width without any control box or special calibration from the factory. ODS sensors can be programmed to operate in Difference Mode instead of measuring thickness. This unique characteristic of the ODS sensors are available in all models in the Black-, Grey- & Red-line families.

