



## Specifications

## ODS *Black-Line* 5 kHz series:



| Models Select-5:           | ODS 20.5               | ODS 115                 | ODS 150         | ODS 200                  | ODS 250         | ODS 450               | ODS 750                |
|----------------------------|------------------------|-------------------------|-----------------|--------------------------|-----------------|-----------------------|------------------------|
| High target Temperature:   | -                      | +                       | +               | +                        | +               | +                     | +                      |
| <b>Measurement data:</b>   |                        |                         |                 |                          |                 |                       |                        |
| Measuring range (FS)       | 9 mm                   | 30 mm                   | 100 mm          | 200 mm                   | 300 mm          | 500 mm                | 700 mm                 |
| Measuring range            | 16-25                  | 100-130                 | 100-200         | 100-300                  | 100-400         | 200-700               | 400-1100               |
| Center distance            | 20,5 mm                | 115 mm                  | 150 mm          | 200 mm                   | 250 mm          | 450 mm                | 750 mm                 |
| Resolution *)              | 0.0008 mm **)          | 0.002 mm                | 0.010 mm **)    | 0.05 mm                  | 0.08 mm         | 0.1 mm                | 0.5 mm                 |
| Reproducibility *)         | ± 0.0008 mm **)        | ± 0.002 mm              | ± 0.010 mm **)  | ± 0.05 mm                | ± 0.08 mm       | ± 0.1 mm              | ± 0.5 mm               |
| Linearity *)               | ± 0.0045 mm            | ± 0.030 mm              | ± 0.050 mm      | ± 0.10 mm                | ± 0.20 mm       | ± 0.3 mm              | ± 0.7 mm               |
| Updating frequency ***)    | 5 kHz                  | 5 kHz                   | 5 kHz           | 5 kHz                    | 5 kHz           | 5 kHz                 | 5 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°         | ± 0.03% FS/C°          |
| Light source ( nm )        | LASER (655/670)        | LASER (655/670)         | LASER (655/670) | LASER (655/670)          | LASER (655/670) | LASER (655/670)       | LASER (655/670)        |
| Size of spot               | Ø 0.1 mm               | Ø 1 mm                  | Ø 1 mm          | Ø 2 mm                   | Ø 2 mm          | Ø 2 mm                | Ø 4 mm                 |
| Laser protection class     | IEC 2                  | IEC 2                   | IEC 2           | IEC 2                    | IEC 2           | IEC 2                 | IEC 3R                 |
| <b>Output data:</b>        |                        | <b>Electrical data:</b> |                 | <b>Environment data:</b> |                 | <b>Physical data:</b> |                        |
| Voltage output ***):       | 1-9 V DC               | Supply voltage          | 24 VDC ±10%     | Operating temperature    | 0 - +45 C°      | Dimensions            | 136*146*50mm ☺)        |
| Current output ***):       | 4-20 mA                | Power consumption       | max 4.5 W       | Storage temperature      | -20 - +70 C°    | Weight excl. Cable    | 1600 g                 |
| Digital output:            | RS232 or RS422         |                         |                 | Humidity non condensing  | Max 90 % RH     | Cable length          | 2.5 m                  |
| Baud rate: 38400 (default) | 1 kHz output frequency |                         |                 | Degree of protection     | IEC IP65        | Housing               | Steel/ Aluminum/ Glass |
| Baud rate: 115200          | 2½kHz output frequency |                         |                 |                          |                 |                       |                        |
| Baud rate: 230400          | 5 kHz output frequency |                         |                 |                          |                 |                       |                        |

\*) Static measurement on white paper at measuring frequency of 5 kHz, without any averaging of the output signals. Sampling and output frequency is the same.

\*\*) Data for digital output. Analog outputs Resolution & Reproducibility < 0.050 mm for ODS 150 and > 0.001 for ODS 20.5. 14 Bit DAC's are used for the conversion.

\*\*\*) The analog outputs are always updated at measuring frequency/5 kHz whether the serial interface is set to operate at 38400, 115200 or 230400 baud (1, 2½ or 5kHz)

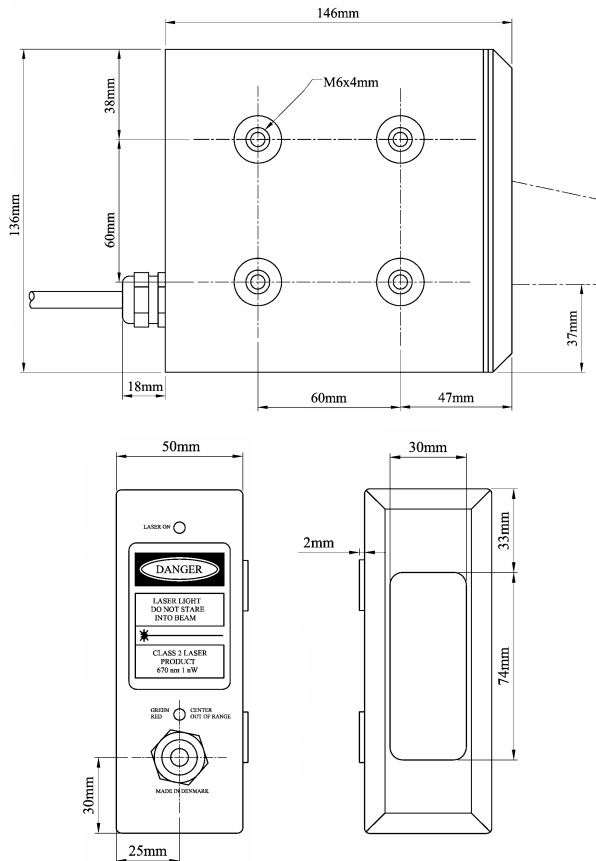
☺) The Dimensions of the ODS 20.5 Model is 136\*138\*50 mm

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## Measuring frequency 5 kHz

**Serial output frequencies are user specified on-line to be 1, 2½ or 5.000 measurement points / second**

All ODS Black-Line 5 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 Level Mode are other options available.



## ODS High Temperature models

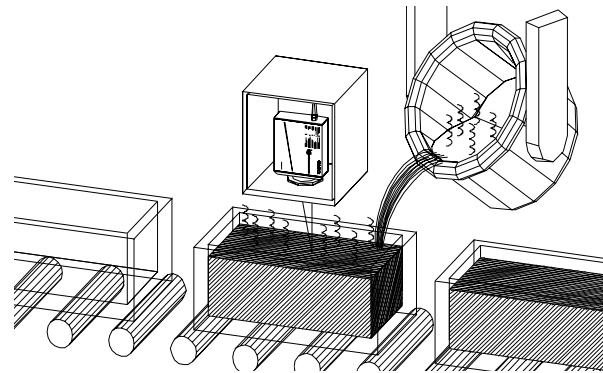
**The HT models are designed for target surfaces temperatures up to 1200 °C.**

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 1200 °C, for temperatures above this a special sensor with laser class 3B/3R will be needed.

Almost all the models in the ODS Black-Line family can be delivered in HT specification, the only exception being the ODS 20.5 5 kHz sensor.

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

The HT specification can also be necessary when there is a high 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.

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 be synchronized and will measure on transparent targets alternately from one side if they are wired to measure at 1 kHz frequency.

A couple of ODS sensors will thus measure thickness, width without any control box or special calibration from the factory. This unique characteristic of the ODS sensors are available in all models in the Black-Line and Red-line families.

