



Specifications

ODS *Black-Line* 10 kHz series:



Models Select-10:	ODS 20.5	ODS 115	ODS 150	ODS 200	ODS 250	ODS 450	ODS 750
High target Temperature:	-	+	+	+	+	+	+
Measurement data:							
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 ***)	10 kHz	10 kHz	10 kHz	10 kHz	10 kHz	10 kHz	10 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 3R	IEC 3R	IEC 3R	IEC 3R	IEC 3R
Output data:		Electrical data:		Environment data:		Physical data:	
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:	either 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 (Requires RS422)						
Baud rate: 460800	10kHz output frequency (Requires RS422)						

*) Static measurement on white paper at measuring frequency of 10 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.

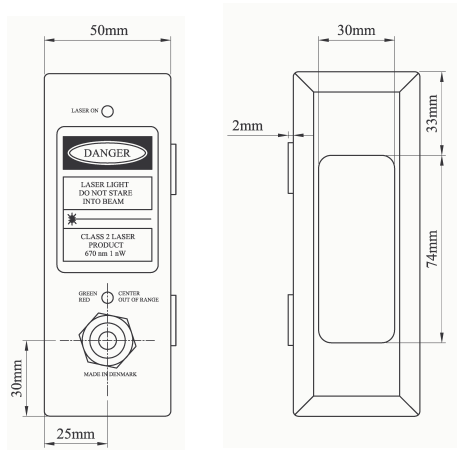
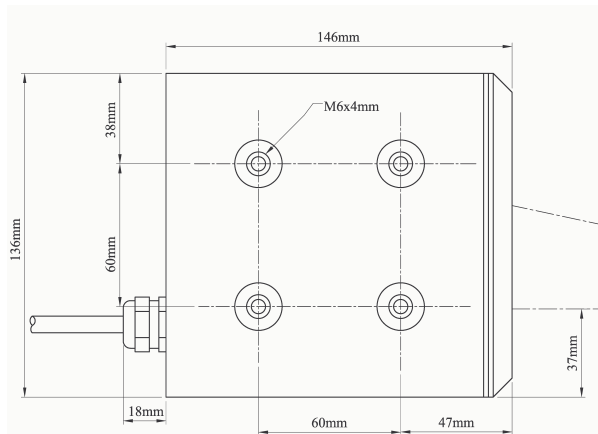
***) The analog outputs are always updated at measuring the frequency whether the serial interface is set to operate at 38400/115200/230400/460800 baud > (1/2½/5/10kHz).

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

Measuring frequency 10 kHz

Serial output frequencies user specified on-line to be 1, 2½, 5 or 10.000 measurement points / second

All ODS Black-Line 10 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.

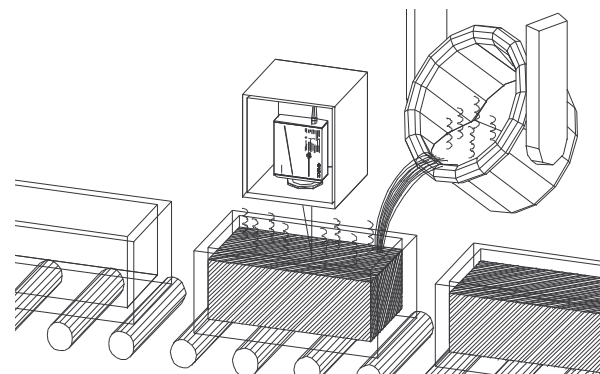
Because of the non-contact measurement method, the ODS xxx HT sensors are specially designed for measurement on objects that are more than 450 °C hot like hot rolled steel or molten metals and glass.

Laser class 2 sensors (1 mW) models will be reclassified to 3R (5 mW) and class 3R sensors must be class 3B (10 mW) sensors in order to achieve target temperatures from 450°C to 1200°C.

Almost all the models in the ODS Black-Line family can be delivered in HT specification, the only exception being the ODS 20.5 10 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.

