SPECIFICATIONS ODS GREY-LINE 2 & 10 kHz SERIES

Options for:

• <u>H</u>igh <u>T</u>arget temp. (1000ºC) - <u>V</u>ery <u>H</u>igh <u>T</u>arget temp. (1300ºC) and <u>V</u>ery <u>V</u>ery <u>H</u>igh <u>T</u>arget temp. (1500 up to 2200ºC)

• Ethernet or USB for digital output (not for thickness mode)

• Customized versions

	ODS 72.5	ODS 75	ODS 82.5	ODS 95	ODS 120
Measurement data:					
Measuring range (FS)	5 mm	10 mm	25 mm	50 mm	100 mm
Measuring range	70-75 mm	70-80 mm	70-95 mm	70-120 mm	70-170 mm
Center distance	72.5 mm	75 mm	82.5 mm	95 mm	120 mm
Short Range Resolution[1]	0.001 mm	0.001 mm	0.001 mm	0.001 mm	0.001 mm
Linearity[1]	.± 0.003 mm	± 0.004 mm	± 0.008 mm	± 0.013 mm	± 0.025 mm
Long Range Resolution[1]	0.001 mm	0.001 mm	0.002 mm	0.004 mm	0.007 mm
Linearity[1]	.± 0.003 mm	± 0.004 mm	± 0.008 mm	± 0.013 mm	± 0.025 mm
Updating frequency	2 kHz/10 kHz	2 kHz/10 kHz	2 kHz/10 kHz	2 kHz/10 kHz	2 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°
Light source/wave length[5]	LASER / 650 nm	LASER / 650 nm	LASER / 650 nm	LASER / 650 nm	LASER / 650 nm
Size of spot	Ø 0.2 mm	Ø 0.3 mm	Ø 0.3 mm	Ø 0.4 mm	Ø 0.4 mm
Laser protection class[4]	IEC 2	IEC 2	IEC 2	IEC 2	IEC 2

Output data:	**Electrical data:**	**Environment data:**	**Physical data:**
Analog output[2] 4-20 mA or 1-9 V	Supply voltage: 22 - 36 VDC	Operating temperature 0 - +45 C°	Dimensions: 120 x 95 x 31.5 mm
Digital output[3] RS232 or RS422	Power consumption max 4.5 W	Storage temperature -20 - +70 C°	Weight excl. cable 370 g
Baud rate: 115200 kbit/s for 2 kHz output freq.		Humidity non condensing: max 90 % RH	M12 connector: 12 pin male code A
Baud rate: 460800 kbit/s for 10 kHz output freq.		Degree of protection: IEC IP65	Housing: Aluminium/Glass Windows

(1) Static measurement on white paper at measuring/sampling frequency, without any averaging of the serial output signal: 2·6 » 2 times the standard deviation.
(2) Analog output Resolution: 14 Bit DAC's are used for the conversion of the 18 bit digital distance result, an integer value with a nominal resolution of 0.001 mm.
(3) Serial/Digital and Analog output are updated at the measuring frequency of 2 kHz & 10 kHz except if the Simple Average Filter is activated.
     10 kHz require RS422, Ethernet or USB interface.
(4) Laser class IEC 3R may be needed for some HT, VHT and VVHT versions.
(5) VVHT versions Blue Laser(405 nm).

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Measuring frequency 2 or 10 kHz

Output rates are user specified, as the sensor can be programmed to make an average of up to 200 measurements (disregarding all zero/missing values) and output it as a single point. In this way the output rate can be lowered from 2000/10000 Hz in steps down to 10/50 Hz. This is done with the Simple Average Filter.

Dimensions
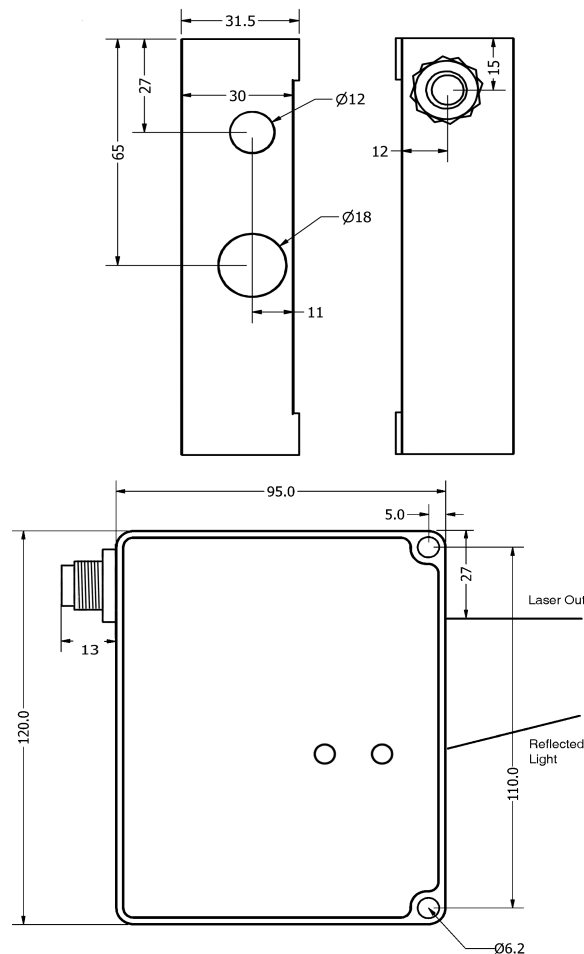
Filter & User Settings available

All ODS Grey-Line sensors have a programming / Select functionality.

There are 3 kinds of averaging filters, Median Filter, Simple Average and Running Average Filter. These filter settings can be set individually and operate simultaneously (and additive), as can most other user settings.

In Group Mode a running average is calculated over a user specified number of measuring points (group). The user also programs the sensor to disregard a number of bad (zero) / missing measuring points before calculating the average value. It is recommended to suppress the maximum number of "0" values. The running average value is calculated at full measuring frequency and is also used for converting the analog signal, either 4-20 mA or 1-9 V.

The Simple Average Filter compresses a number of measuring points, from 1 to 200, into one single output value by making an average disregarding any "0"/missing values present.
Several Median filters, actually from 3 to 31 is available, as well as Sample Hold Mode, where the last valid measurement value is kept as the output value in case of missing "0" measuring points.

Level Mode inverts the measuring values, in this setting the closer distances will be output as high values whereas distances far away will be output as low values.

ODS High Temperature models

ODS Grey-Line sensors can be specified to measure up to 1000ºHT or 1300ºC/VHT with a Red Diode. When VVHT is specified a Blue Diode is used and the target temperature can reach far above 1500ºC.

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 Grey-Line sensors are calibrated for measuring thickness when paired.

An ODS Grey-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 as 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.

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