

# ODS 250

## SELECT Model & 2-Select Model

Optical Displacement Sensors  
Using Advanced Laser Technique,  
a Line Scan Camera and Digital  
Signal Processing Mathematics.



## Specifications

### Measurement data

Measuring range	100-400 mm
Center distance	250 mm
Resolution*)	0,08 mm
Linearity*)	± 0,1 % of Full Scale
Reproducibility*)	± 0,08 mm
Updating frequency	1000/500 Hz or **)2/1 kHz
Temperature deviation	± 0.03% of FS/°C
Light source	Visible laser (670nm)
Size of light spot	Ø 2 mm
Laser protection class	IEC 2

### Environment data

Operating temperature	0 - +50 °C
Storage temperature	-20 - +50 °C
Humidity (non condensing)	Max 90 % RH
Degree of protection	IEC IP65

### Physical data

Dimensions	136*146*50 mm
Weight excl. Cable	1600 g
Cable length	2.5 m
Housing	Steel / Aluminium / Glass

### Output data

Voltage output (Select Model only)	1-9 VDC
Current output	4-20 mA
Digital output	RS232C or RS422/485
Baud rate	38400 or **)115200

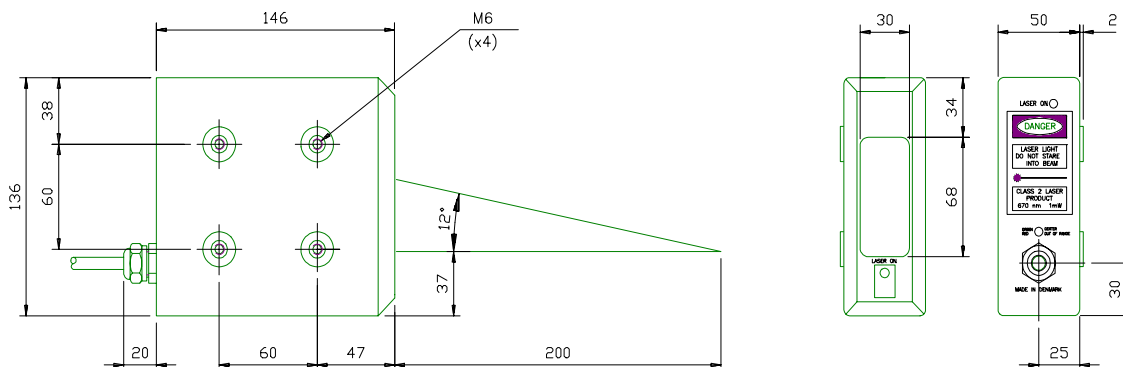
### Electrical data

Supply voltage	24 VDC ± 10 %
Power consumption, max	4.5 W

\*) Static measurement on white paper at full frequency  
\*\*) Applicable for the ODS 250 2-Select Model

Specifications subject to change without notice

## Dimensions



## General description

---

The ODS sensor is an optical measuring device for contact-less precision measurement of distance or thickness. The measurement is performed by means of the triangulation principle. A collimated laser beam forms a spot on the object. A CCD-camera records the image and makes it possible to determine the distance to the object after numerous calculations for each output value. The ODS Select measuring system is a compact unit in which optics, sensor, and signal processing electronics all are integrated. The sensor is easy to install, since a light emitting diode indicate, when the object is at the centre or outside the measuring range. Furthermore, the laser light is visible and therefore easy to see on the object. The sensor is delivered with a demo disk containing a program for a Personal Computer. The program receives distance data from the ODS Select, HT or 2-Select, and can display and save the data to file, and can also be used to program the sensor.

The ODS Select sensor is offering the user 4 modes of operation as chosen by using the software:

- GROUP MODE – Builds averages over a group of measurements after filtering out zero values.
- STOP & GO of the measuring activity via the serial port. This function is available in all modes.
- LEVEL MODE – Will output distance readings in the reversed order for all the 3 output forms.
- EXTENDED THICKNESS MODE – Doubles the measuring range at half the resolution as compared to Standard Thickness Mode.

The user can thus define a number of consecutive measurements to form a Group of values. The sensor is in this Mode able to update the Group with a new measurement results at 1 kHz (or 2 kHz for the 2-Select Model) and output the Group average at the same rate. Furthermore the user can instruct the sensor to disregard up to a certain number of measurements with zero values, and have the output value calculated as the average of the remaining number of values in the Group. This functionality is very important. It is always appropriate to average the measurement values with a moving target. With some kinds of target surfaces it is difficult to completely avoid loss of measurement data. In such applications it is important not to distort measurement results by calculating averages that contains zero measurement values. When an application, analog or digital, sample the measurement data at less than the sensor frequency always use Group Mode.

Besides working at 2 kHz, the 2-Select Model is characterised by a light intensity control system, where the control algorithms utilise the digitised intensity values of the light spot, that the camera actually sees and uses for determining the distance. Hence this ODS version is especially suitable for difficult surfaces where mirror like reflections can influence the measuring accuracy.

## Applications

---

- Distance measurement
- Thickness measurement
- Profile measurement
- Level control
- Measurements for feedback in productions lines
- Measurements for quality control and statistics

At the right, an application is shown, where the sensor is used for level measurements and control of hot material.

