

LASE 1000T BLACK-LINE SERIES

The distance sensors of the LASE 1000T Series are optical measuring devices which work according to the triangulation principle. This technique ensures the highest accuracies within μm of range:

- » Measurement length, width, height, level and position of objects
- » Positioning of machine parts
- » Quality control of paper, steel or aluminum coils
- » Slab width and thickness measurement
- » Measurement of liquid levels and solid materials
- » Measurement and regulation of slack

THE SENSOR

The sensors from the LASE 1000T Black-Line Series are contactless one-dimensional distance meters especially built for the operation in harsh industrial environments.

The LASE 1000T Black-Line Series is typically used for contactless distance, thickness or width measurements - both at short and long standoff positions.

The devices produce a visible laser point onto an object while the relative position of this laser point is evaluated by a high resolution CCD line camera. From the position of this point along the CCD line, the distance is computed to the object. Due to this procedure an accuracy of up to 0,001 mm depending on its measuring range can be achieved and the range on natural surfaces amounts to max. 750 mm. The sensors incorporate an automatic regulation of the light intensity and thereby provide unsurpassed measuring characteristics.

The LASE 1000T Sensor Series are compact devices because all optical elements are integrated with the electronic components in a highly durable aluminium housing. The sensors do not contain mobile parts and are appropriate for measurement tasks in heavy industrial environments or where precision demands have to be better than 1 mm, e.g. at thickness measurements or quality control.



EXTENDED VERSION

- » HT-Version for target temperatures of up to 1000 °C
- » VHT-Version for target temperatures of up to 1300 °C
- » VVHT-Version for target temperatures of up to 2200 °C

All HT-Versions are available with laser class 3R and 3B

THE FEATURES

- ✓ Contactless distance measurement
- ✓ Measurement range from 50 mm up to 750 mm
- ✓ High measuring rate (up to 2 kHz)
- ✓ Interfaces: analog, digital (RS 232 or RS 422) and Ethernet
- ✓ Rugged construction type to IP 65

THE BENEFITS

- ✓ Highest accuracy in the μm -area
- ✓ Suitable for measurements on nearly all surfaces
- ✓ Applicable for target temperatures of up to 450 °C
- ✓ Simple installation at each position
- ✓ Optional cooling/protection housing for hot environments

TECHNICAL DATA: LASE 1000T BLACK-LINE SERIES

LASE 1000T	205	230	280	330	445	455	510	550	650	775
DISTANCE MEASUREMENT										
Measuring range full scale	50 mm	100 mm	200 mm	300 mm	500 mm	100 mm	200 mm	300 mm	500 mm	750 mm
Measuring range normal scale	180 - 230 mm	180 - 280 mm	180 - 380 mm	180 - 480 mm	200 - 700 mm	400 - 500 mm	400 - 600 mm	400 - 700 mm	400 - 900 mm	400 - 1150 mm
Center distance	205 mm	230 mm	280 mm	330 mm	450 mm		500 mm	550 mm	650 mm	775 mm
Spot size	Ø 0,5 mm	Ø 0,6 mm	Ø 0,7 mm	Ø 0,8 mm	Ø 0,5 mm	Ø 0,6 mm	Ø 0,7 mm	Ø 0,8 mm	Ø 1 mm	
Laser safety class ¹	IEC 2									
SCAN AND PROFILE MEASUREMENT										
Resolution (at short range) ²	0,01 mm									
Resolution (at long range) ²	0,01 mm		0,02 mm	0,03 mm	0,07 mm	< 0,02 mm	0,02 mm	0,04mm	0,10 mm	
Linearity ²	< ± 0,01 mm	± 0,02 mm	± 0,04 mm	± 0,09 mm	± 0,20 mm	± 0,04 mm	± 0,06 mm	± 0,15 mm		± 0,30 mm
Temperature deviation (0° ... 40° C)	± 0,3 mm FS/C°									
Measuring frequency ²	2 / 1 kHz									
Wave length	650 nm									
INTERFACES										
Analog ³	4-20 mA									
	1-9 V									
Digital ⁴	RS 232 or RS 422									
ELECTRICAL & MECHANICAL										
Power supply	22... 36 V DC									
Power consumption	max. 4,5 W									
Protection class	IP 65									
Dimensions	95 x 120 x 31,5 mm									
Weight	approx. 390 g									
ENVIRONMENT DATA										
Temperature range	operation: 0° ... 45° C 3 storage: -20° C ... +70° C									
Humidity	max. 90% relative humidity									

¹ Laser class IEC 3R at HT and VHT sensor series with a frequency of 1 or 2 kHz.

² Resolution, Linearity and Frequency valid for static measurements on white paper.

³ Analog output: 14 Bit DAC's are used for the conversion of the digital distance result (nominal resolution 0,01 mm).

⁴ Analog and digital output are updated at the measuring frequency of 2 kHz (exception at activating Simple Average Filter).

Options:

Sensors are fitted with a 12 pin male M12 connector. Cable with female connector for the sensor part can be ordered in the lengths between 2 m and 10 m.

- Type /2: 2 meter cable length

- Type /10: 10 meter cable length

- Type /10HT*: 10 meter cable length (HT indicates high temperature specification cable - Environment temperature max. 260°C)

Scope of delivery: sensor, operating instructions, configuration software

