dimensions	**12.4 x 37 x 34.5mm**	
dif. reflection sensors (analog)	measuring range	**16 to 26mm** **16 to 120mm**

- ✓ **analog output 4 to 20mA or 0 to 10V DC**
- ✓ **laser distance measurement with high resolution**
- ✓ **small linearity deviation**
- ✓ **LED display for valid measuring range**
- ✓ **LED display for operation and soiling**
- ✓ **short response and decay time**
- ✓ **recognition of the smallest of objects**
- ✓ **robust metal housing**
- ✓ **simple adjustment**
- ✓ **laser class 2**

red light laser with glass lens
teachable analog measuring range

description

The compact laser distance sensors with a measuring range up to 120mm work using integrated microcontrollers to provide a precise output signal which is proportional to the measured distance.

An intelligent, internal signal analysis enables the sensor to work precisely, regardless of the color and structure of most surfaces.

For every application, the distance between the sensor and the object should be selected to be as small as possible with the aid of the teach function. The smaller the distance, the better the resolution and precision.

The sensors of this series feature glass lenses in a robust zinc diecast housing. It can be aligned easily and reliably using the small, red laser spot.

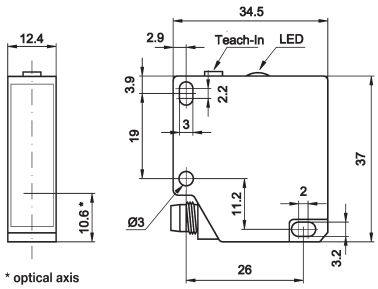
The functional principle behind these diffuse reflection sensors is based on the triangulation principle, in which the position of the object is determined by the angle of light reflected from it.As is the case with all triangulation sensors, it is necessary to make sure that the laser spot can be seen directly by the receiver lens and that there are no obstacles in front of the receiver lens.

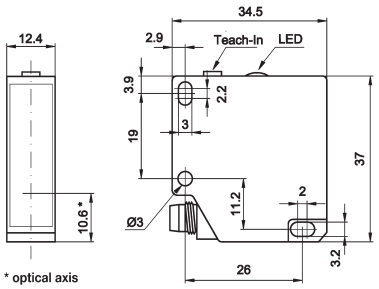
The green LED lights up if the normal operating state is achieved. The red LED display is also very helpful. This signalizes exceeding of the valid measuring range. If the red LED flashes, the devices are working with an insufficient functional reserve. This is the case for example, if the sensors are soiled or misadjusted.

application examples

- thickness measurement of small and large parts
- continuous measurement of the diameter of rolled up goods in the winding process
- highly accurate and color-independent positional measurement
- precise detection of deviations in position

article-no.	**PT160070**	**PT160071**
output signal	**4 ... 20mA**	**4 ... 20mA**
measuring range	**16 ... 26mm**	**16 ... 120mm**
article-no.	**PT160075**	**PT160076**
output signal	**0 ... 10V DC**	**0 ... 10V DC**
measuring range	**16 ... 26mm**	**16 ... 120mm**





TECHNICAL DATA

measuring range	16 ... 26mm	16 ... 120mm
resolution	0.002 ... 0.005mm	0.002 ... 0.12mm
linearity deviation	±0.006 ... ±0.015mm	±0.015 ... ±0.35mm
output signal	see above	see above
operating voltage	12 ... 28V DC	12 ... 28V DC
current consumption (max. load)	≤ 100mA	≤ 100mA
load resistance	voltage output: > 100kΩ current output: < (U_B-6V)/0.02A	voltage output: > 100kΩ current output: < (U_B-6V)/0.02A
transmitting element (pulsed)	laser diode, red light	laser diode, red light
wavelength	650nm	650nm
laser class	2	2
light spot size	Ø 0.5 ... 0.2mm	Ø 0.9 ... 0.5mm
switching frequency	500Hz	500Hz
display (operation)	green LED	green LED
display (alarm)	red LED	red LED
display (soiling)	red LED, flashing	red LED, flashing
adjustment	teach-button and remote-teach input teach-in limits > 1mm	teach-button and remote-teach input teach-in limits > 2mm
short-circuit protection	+	+
reverse polarity protection	+Vs to GND	+Vs to GND
dimensions	12.4x37x34.5mm	12.4x37x34.5mm
housing material	zinc diecast	zinc diecast
front screen material	glass	glass
operating temperature	0 ... +50°C	0 ... +50°C
degree of protection (EN 60529)	IP67	IP67
connection	M8-connector, 4-pin	M8-connector, 4-pin
connection accessories	e.g. **VK200375**	e.g. **VK200375**
mounting accessories (bracket)	**AO000067**	**AO000067**
mounting accessories (universal holder)	**AY000118**	**AY000118**

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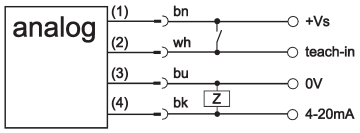
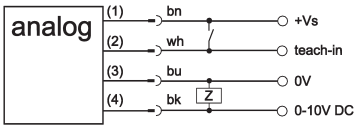
connection

current output



voltage output



wire colors: bn = brown (1), wh = white (2), bu = blue (3), bk = black (4)

Warning

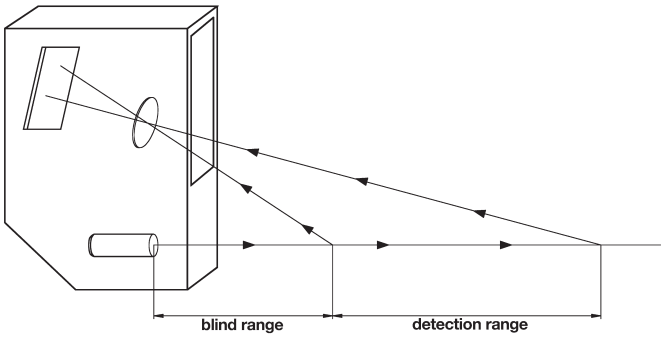
Caution! Laser radiation!
Do not stare into the beam!

laser class 2
according to DIN EN 60825

wavelength 650nm
max. output power < 1mW

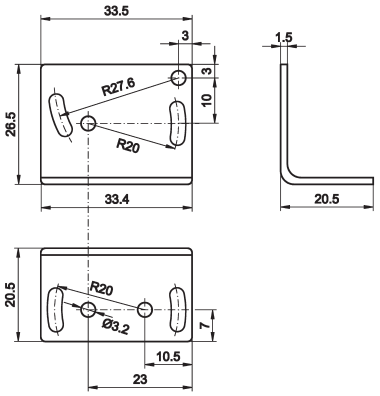
3

triangulation principle

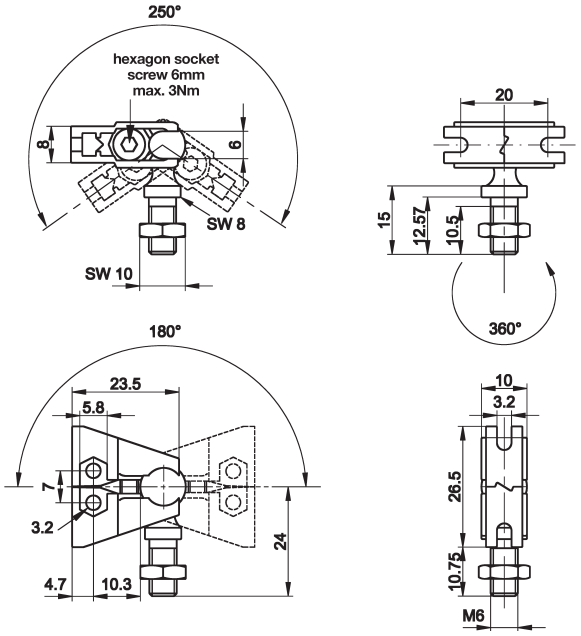


The laser beam is emitted by the transmitter diode and hits the object as a small spot. The sensor's receiver element detects the position of this spot within the „detection range". The sensor basically measures the angle of this position and then calculates the adequate distance. There is a „blind zone" directly in front of the sensor where the objects are not reliable recognized.

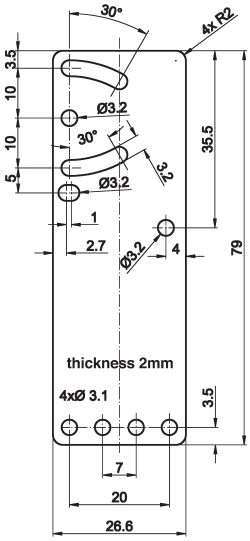
mounting accessories (bracket) AO000067



mounting accessories (universal holder) AY000118
consisting of base module



... and fitting panel



ARTICLE-NO.	DESCRIPTION	MATERIAL
AO000067	mounting accessories (bracket)	fitting panel made of stainless steel
AY000088	base module *	flanges made of stainless steel, ball pins made of galvanized steel
AY000118	mounting accessories (universal holder)	fitting panel made of stainless steel

*** The base module AY000088** is included in every mounting kit of the universal mounting.
Material of bolts and nuts: galvanized steel

This data sheet contains the standard versions only. Kindly request the availability of other output and connection versions.

We will be pleased to supply the matching cable socket for your devices with connector. Please refer to the list in catalog chapter „accessories“ under „cable sockets ipf-*SENSORFLEX®*“ or search our website for „VK“.

Warning: Never use these devices in applications where the safety of a person depends on their functionality.

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