

**PY74002A**

## Light section sensors

- / measurement of center position, diameter and outer positions on round objects
- / flexible mounting  $-30^{\circ}/+30^{\circ}$
- / with touch-display
- / aluminum housing



laser cutting procedure  
laser protection class 1



### General data

dimensions	26 x 55 x 85mm
function	measurement of: center point, diameter, outer position on round objects
function FLEX MOUNT and MEASURING FIELD	yes
smallest detectable diameter	30mm
biggest detectable diameter	130mm
measuring range (distance)	150 ... 250mm
start of measuring range	150mm
end of measuring range	250mm
measuring field size (width)	75 ... 125mm
measuring field width right @ end of measuring range	+62.5mm
measuring field width left @ end of measuring range	-62.5mm
blind range	0 ... 150mm
measuring frequency	
- OBJECT light (approx. 90% refl.)	200 ... 450Hz
- OBJECT dark (approx. 6% refl.)	170 ... 250Hz
response time	
- OBJECT light (approx. 90% refl.)	7 ... 15ms
- OBJECT dark (approx. 6% refl.)	12 ... 18ms
resolution X-center point	10 ... 40 $\mu$ m
resolution Z-center point	30 ... 90 $\mu$ m
resolution Z-Top	10 ... 20 $\mu$ m
resolution diameter	150 ... 230 $\mu$ m
repeat accuracy X-center point	10 ... 20 $\mu$ m
repeat accuracy Z-center point	20 ... 40 $\mu$ m
repeat accuracy Z-Top	10 ... 20 $\mu$ m
repeat accuracy diameter	30 ... 70 $\mu$ m
linearity deviation X-center point	$\pm$ 35 ... 60 $\mu$ m
linearity deviation Z-center point	$\pm$ 110 ... 180 $\mu$ m
linearity deviation Z-Top	$\pm$ 50 ... 100 $\mu$ m
linearity deviation diameter	$\pm$ 150 ... 220 $\mu$ m
offset diameter	$\pm$ 140 $\mu$ m

PRECISION filter values:	median	average
standard	off	off
high	7	16
very high	15	128
temperature drift	< 0.05% Sde/K	
necessary angular segment	≥120°	
minimum measuring field	X=30mm; Z=15mm	
minimum window size analog output	2mm	
laser class	1	
adjustment	touch display	
FLEX MOUNT Offset standard	4mm	
max. unevenness reference surface (rms)	0.4mm	
min. length reference surface	50mm	
digital hysteresis	1% of switching point	
operating display	LED green	
output display	LED yellow / LED red	
light source	laser diode red, pulsed	

**Mechanical data**

width / height / legth	26 / 74 / 55mm
design	cuboid, frontal optics
housing material	aluminum
front screen	glass
connection	M12-connector, 8-pin
weight	130g

**Electrical data**

operating voltage	15 ... 28V DC
current consumption max. (ohne Last)	120mA
output circuit	analog
output signal	4 ... 20mA / 0 ... 10V DC (adjustable)
switching output	push-pull
switching function	Out 1 / alarm
output current	< 100mA
reverse polarity protection	yes, +VS to GND
short-circuit protection	yes

**Ambient conditions**

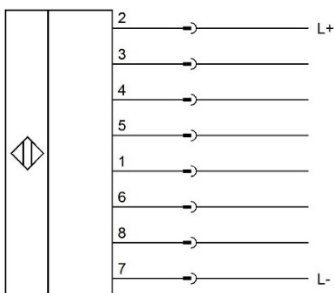
ambient light immunity	< 25kLux
temperature (operating)	-10 ... +50°C
temperature (storage)	-25 ... +75°C
protection class	IP67
vibration resistance (sinusoidal)	<b>IEC 60068-2-6:2008</b> 7.5mm p-p for f = 2 - 8Hz, 2g for f = 8 – 200Hz, or 4g for 200 – 500Hz
resonance test	<b>IEC 60068-2-6:2008</b> 1.5mm p-p for f = 10 - 57Hz , 10 cycles for each axis 10g for f = 58 -2.000Hz, 10 cycles for each axis
vibration resistance (coincidence)	<b>IEC 60068-2-64:2008</b> spectrum: 0.1g <sup>2</sup> /Hz for 20 – 1.000Hz, 30 minutes / axis (>10gRMS)
shock resistance	<b>IEC 60068-2-27:2009</b> 50g / 11ms or 100g / 6ms, 10 shocks in each axis and each direction

impact resistance	100g / 2ms, 5.000 shocks in each axis and each direction <b>IEC 60068-2-27</b> 100g / 2ms, 4,000 shocks in each axis and each direction
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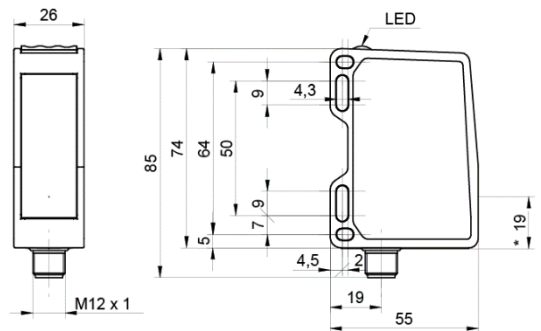
**Optical data**

light source	AlGaInP laser diode
wave length	656nm
operating mode	pulsed
pulse duration	
mode light objects	2.4ms
mode dark objects	0.6ms
pulse period	
mode light objects	>5.7ms
mode dark objects	>4.0ms
emitted total pulse power	3mW
beam shape	elliptical (focused to laser line)
focal distance df	200mm
beam size @ window	
vertical	3mm
parallel	8mm
beam size @ focus point	
vertical	< 0.4mm
parallel	L = 125mm
beam divergence	
vertical	9mrad
parallel	29°
laser classification (IEC 60825-1/2014)	laser class 1
Nominal ocular hazard distance (NOHD)	NA

**Connection**



**Dimensional drawing**



\*optical axis

**functions:** 1 = n. c., 2 = L+, 3 = 4-20mA/0-10V, 4 = Push Pull, 5 = Alarm Push Pull, 6 = n. c., 7 = L-, 8 = Hold

**colors:** 1 = WH (white), 2 = BN (brown), 3 = GN (green), 4 = YE (yellow), 5 = GY (gray), 6 = PK (pink), 7 = BU (blue), 8 = RD (red)

**Safety warnings:**

Before initial operation, please make sure to follow all safety instructions that may be provided in the product information!

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