

Diffuse laser sensors Series 16

Diffuse contrast sensor

Tw 250 mm



PNP	light operate
	dark operate
	light/dark operate
NPN	light operate
	dark operate
	light/dark operate

cable
OZDM 16P1001
OZDM 16P3001
OZDM 16N1001

connector
OZDM 16P1001/S14
OZDM 16P3001/S14
OZDM 16N1001/S14

technical data	
optimum operating range ¹⁾	40...80 mm
sensing distance adjustable Tw	250 mm
beam focal point	80 mm
repeatability (lateral approach)	< 0,1 mm at focal point
min. detectable contrast ²⁾	$\Delta \leq 8\%$ diffuse reflection (grey)
output indicator	yellow LED
power indicator	green LED
light source	pulsed red laser diode
wave length	675 nm
laser class (IEC 825-1/1996) for Europe	1
laser class (21CFR 1040.10) for USA	2
voltage supply range	12 - 30 VDC
max. supply current average value / peak value	60 mA / 65 mA
max. switching current	200 mA
voltage drop	$\leq 1,8$ VDC
response time / release time	$\leq 0,05$ ms
sensitivity adjustment (digital output)	14 turn pot
short circuit protection	yes
reverse polarity protection	yes
temperature range	-10...+50 °C
housing material	die-cast zinc
protection class	IP 67

¹⁾ within this range the received signal is insensitive to small changes in the object distance

²⁾ at constant temperature, at 40 mm sensing distance and between 0 and 100% diffuse reflection

40...80 mm
250 mm
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pulsed red laser diode
675 nm
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Analog PNP	light operate
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OZDM 16P1901

OZDM 16P1901/S14

technical data complementary	
analog output	4 - 20 mA
reaction time (10 to 90% of signal change)	$\leq 0,1$ ms
analog signal versus diffuse reflection factor: analog output range	0% diffuse reflection up to mirror reflection
linear range	0...100% ²⁾ corresponds to typ. 4,5 - 14,5 mA ³⁾
repeatability (at constant temperature) ¹⁾	$\leq \pm 5\%$ FS (linear range)
temperature drift reference room temperature	$\leq \pm 3\%$ FS (linear range)

¹⁾ within linear range and at 40 mm sensing distance

²⁾ diffuse reflection factor (measured with red light of 675 nm wave length)

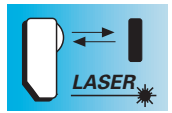
³⁾ within optimum operating range

4 - 20 mA
$\leq 0,1$ ms
0% diffuse reflection up to mirror reflection
0...100% ²⁾ corresponds to typ. 4,5 - 14,5 mA ³⁾
$\leq \pm 5\%$ FS (linear range)
$\leq \pm 3\%$ FS (linear range)
$\leq \pm 5\%$ FS (linear range) within full temp.range

4 - 20 mA
$\leq 0,1$ ms
0% diffuse reflection up to mirror reflection
0...100% ²⁾ corresponds to typ. 4,5 - 14,5 mA ³⁾
$\leq \pm 5\%$ FS (linear range)
$\leq \pm 3\%$ FS (linear range)
$\leq \pm 5\%$ FS (linear range) within full temp.range

²⁾ diffuse reflection factor (measured with red light of 675 nm wave length)

³⁾ within optimum operating range



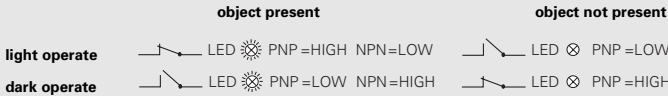
Series 16

- Diffuse laser contrast sensor
- Accurate detection of printing marks, object edges etc.
- Digital switching and analog current output
- Adjustable sensitivity
- Visible red light for alignment aid

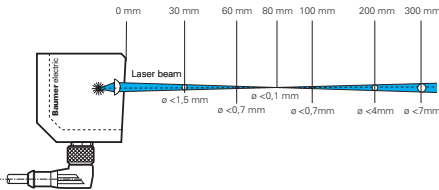
connection diagram



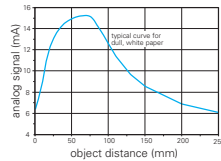
output state



beam diameter chart



signal chart OZDM 16P1901



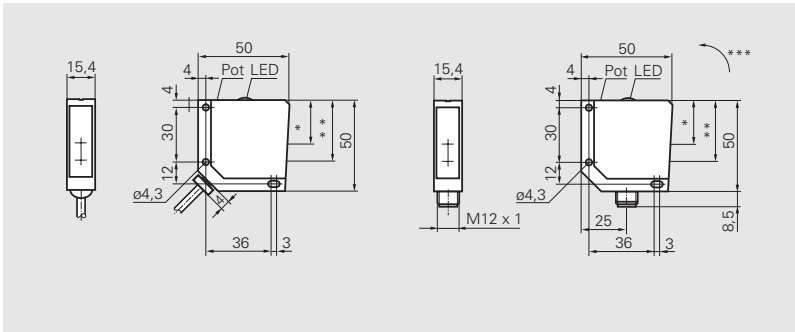
connectors

ES 14		
ES 24		
ESW 33AH0200	4 pin	2 m PUR halogen-free
ESG 34AH0200	4 pin	2 m PUR halogen-free

accessory

mounting bracket	113917
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for details see accessories section



- * emitter axis 19 mm
- ** receiver axis 25,5 mm
- *** When detecting shiny objects it is recommended to tilt the sensor 5° to 20° from perpendicular to the sensing plane.

Tw adjustable up to 250 mm

Diffuse contrast sensor

Visible red light

Class 1 LASER Product

IEC 825-1/1996

CAUTION
LASER RADIATION
DO NOT STARE INTO BEAM
LASERDIODE
Wavelength: 630 - 660 nm
Max. Output: 1 mW
Class 2 LASER Product

21CFR 1040.10