

1) Display and control panel, 2) Optical axis receiver, 3) Optical axis emitter, 4) rotatable 270°



IND. CONT. EQ  
 77HA  
 for use in the secondary of  
 a class 2 source of supply



### Basic features

<b>Approval/Conformity</b>	cULus CE EAC WEEE
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Photoelectric sensor
<b>Series</b>	26K
<b>Style</b>	Square Connection can be rotated

### Display/Operation

<b>Adjuster</b>	2-turn potentiometer
<b>Display</b>	Output function- LED yellow Error - LED red Switching dist. - dig. disp. Stability - LED green
<b>Setting</b>	Rated switching distance (Sn)

### Electrical connection

<b>Connection</b>	Connector, M12x1-Male, 4-pin
<b>Polarity reversal protected</b>	yes
<b>Short-circuit protection</b>	yes

### Electrical data

<b>No-load current I<sub>o</sub> max. at U<sub>e</sub></b>	50 mA
<b>Operating voltage U<sub>b</sub></b>	10...30 VDC
<b>Protection class</b>	II
<b>Rated insulation voltage U<sub>i</sub></b>	75 V DC
<b>Rated operating current I<sub>e</sub></b>	200 mA
<b>Rated operating voltage U<sub>e</sub> DC</b>	24 V
<b>Ripple max. (% of U<sub>e</sub>)</b>	10 %
<b>Switching frequency</b>	2500 Hz
<b>Turn-off delay t<sub>off</sub> max.</b>	0.2 ms
<b>Turn-on delay t<sub>on</sub> max.</b>	0.2 ms
<b>Utilization category</b>	DC -13
<b>Voltage drop U<sub>d</sub> max. at I<sub>e</sub></b>	2.4 V

**Environmental conditions**

<b>Ambient temperature</b>	-20...45 °C
<b>EN 60068-2-6, Vibration</b>	10...55 Hz, amplitude 0.5 mm, 3x30 min
<b>Protection degree</b>	IP67

**Functional safety**

<b>MTTF (40 °C)</b>	191 a
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**Material**

<b>Housing material</b>	ABS
<b>Material sensing surface</b>	PMMA

**Mechanical data**

<b>Dimension</b>	17 x 50 x 50 mm
<b>Mounting</b>	Screw M4

**Optical features**

<b>Ambient light max.</b>	5000 Lux
<b>Average power Po max.</b>	1 mW
<b>Laser class per IEC 60825-1</b>	2
<b>Light type</b>	Laser red light
<b>Principle of optical operation</b>	Diffuse sensor, triangulation
<b>Pulse duration t max.</b>	10.0 µs
<b>Pulse frequency</b>	14 kHz
<b>Pulse power Pp max.</b>	4.8 mW
<b>Special optical feature</b>	Background suppression
<b>Switching function, optical</b>	Light-on dark-on
<b>Wave length</b>	670 nm

**Output/Interface**

<b>Switching output</b>	NPN normally open (NO) NPN NC Pins 4-2
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**Range/Distance**

<b>Distance deviation 18 % max. (% of Sr)</b>	5 % on 90 % rem.
<b>Range</b>	50...300 mm
<b>Rated operating distance Sn</b>	300 mm Adjustable

**Remarks**

Order accessories separately.

For additional information, refer to user's guide.

The sensor is functional again after the overload has been eliminated.

Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.

Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.

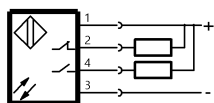
For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

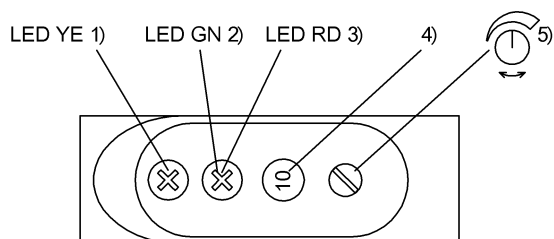
**Connector Drawings**



**Wiring Diagrams**



## Help Views

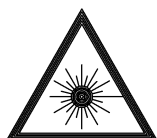


- 1) Output function
- 2) Stability
- 3) Error
- 4) Switching dist. dig. displ.
- 5) Sensitivity

## Opto Symbols



## Warning Symbols



LASER BEAM - DO NOT STARE INTO THE LIGHT BEAM!

LASER CLASS 2 per IEC60825-1: 2003-10