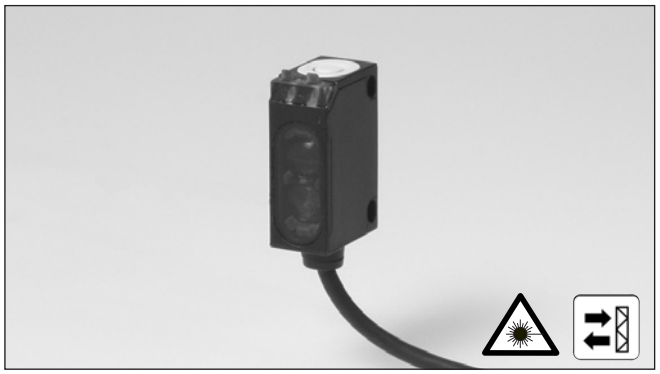
Photoelectrics
Laser, Retro-reflective, Polarized
Type LD32CNP10

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- **Miniature sensor range**
- **Range: 0.1-1 m, with reflector**
- **Sensitivity adjustment by Teach-In programming**
- **Modulated, red laser light 650 nm, polarized (class 2)**
- **Supply voltage: 10 to 30 VDC**
- **Output: 100 mA, NPN or PNP preset**
- **Make and break switching function programmable**
- **LED for output indication and power ON**
- **Protection: reverse polarity, short circuit and transients**
- **Cable and plug versions**
- **Excellent EMC performance**

CE

Product Description

The LD32CNP10 sensor family comes in a compact 12 x 32 x 20 mm reinforced PMMA/ ABS-housing.
The sensors are useful in applications where high-accuracy detection as well as small size is required.
The Teach-In function for adjustment of the sensitivity makes the sensors highly flexible. The output type is preset (NPN or PNP), and the output switching function is programmable (NO or NC).
The small laser spot makes it possible to detect small objects very precisely.

Ordering Key

LD32CNP10PPM5T

- **Type**
- **Housing style**
- **Housing size**
- **Housing material**
- **Housing length**
- **Detection principle**
- **Sensing distance**
- **Output type**
- **Output configuration**
- **Connection type**
- **Teach-In**

Type Selection

Housing W x H x D	Range S_n	Ordering no. NPN & PNP cable Make & break switching	Ordering no. NPN & PNP plug Make & break switching
12 x 32 x 20 mm	1.0 m	**LD 32 CNP 10 NPT** **LD 32 CNP 10 PPT**	**LD 32 CNP 10 NPM5T** **LD 32 CNP 10 PPM5T**

Specifications

Rated operating distance (S_n)	Up to 1.0 m, with reflector 51 x 51 mm (ER5060)
Blind zone	100 mm
Sensitivity	Adjustable by Teach-In (push button or wire)
Temperature drift	≤ 1%/°C
Hysteresis (H) (differential travel)	≤ 10%
Rated operational volt. (U_B)	10 to 30 VDC (ripple included)
Ripple (U_{rpp})	≤ 10%
Output current	
Continuous (I_e)	≤ 100 mA
Short-time (I)	≤ 100 mA (max. load capacity 100 nF)
No load supply current (I_o)	≤ 25 mA @ 24 VDC
Minimum operational current (I_m)	0.5 mA
OFF-state current (I_r)	≤ 100 µA
Voltage drop (U_d)	≤ 2.4 VDC @ 100 mA

Protection	Short-circuit, reverse polarity and transients
Laser protection class	Class 2 - according to EN60825-1-3/97
Average power	< 1 mW
Pulse width	t = 3 µs
Pulse repetition time	f = 5 kHz
MTBF	> 50'000 h @ T_a = 40°C
Light source	Red laser light, 650 nm
Light type	Red, modulated
Sensing angle	< 0.8°
Ambient light	5,000 lux
Light spot	< 1 mm @ 300 mm
Operating frequency	1000 Hz
Response time	
OFF-ON (t_{ON})	≤ 0.5 ms
ON-OFF (t_{OFF})	≤ 0.5 ms
Power ON delay (t_v)	≤ 300 ms
Output function	
NPN and PNP	Preset
NO/NC switching function	Set up by button

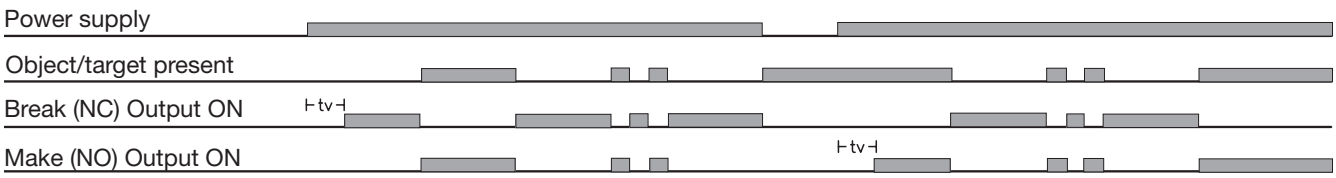
Specifications (cont.)

External Teach (ET)	
Same function as button	10 to 30 VDC
Locked (disable teach button)	0 to 2.5 VDC
Operating mode	Not connected
Indication	
Output ON	LED, yellow
Signal stability ON and power ON	LED, green
Environment	
Installation category	II (IEC 60664/60664A; 60947-1)
Pollution degree	3 (IEC 60664/60664A; 60947-1)
Degree of protection	IP 67 (IEC 60529; 60947-1)
Ambient temperature	
Operating	-20 to +60° C (-4 to +140° F)
Storage	-20 to +80° C (-4 to +176° F)

Vibration	10 to 55 Hz, 0.5 mm/7.5 g (IEC 60068-2-6)
Shock	30 g / 11ms, 3 pos, 3 neg per axis (IEC 60068-2-6, 60068-2-32)
Rated insulation voltage	500 VAC (rms)
Housing material	
Body	ABS, black
Front material	PMMA, red
Connection	
Cable	PUR, black, 2 m 4 x 0.14 mm^2, Ø = 3.6 mm
Plug	M8, 4-pin
Weight	Cable type: 40 g Plug type: 10 g
CE-marking	Yes

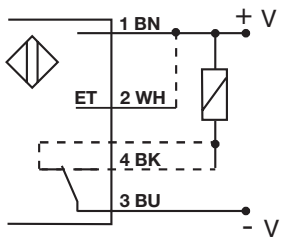
Operation Diagram

tv = Power ON delay

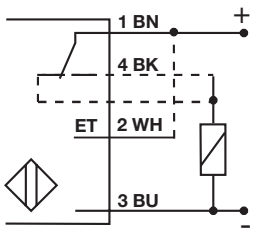


Wiring Diagrams

NPN



PNP

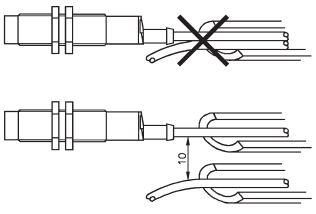


Teach input is active when 2 WH wire is connected to V+ (1 BN).

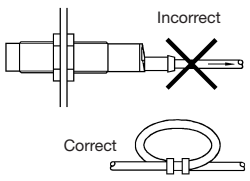
ET = External Teach

Installation Hints

To avoid interference from inductive voltage/ current peaks, separate the prox. switch power cables from any other power cables, e.g. motor, contactor or solenoid cables

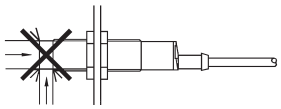


Relief of cable strain



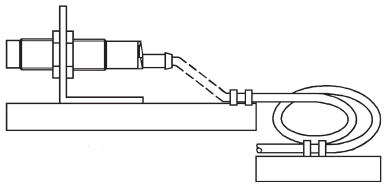
The cable should not be pulled

Protection of the sensing face



A proximity switch should not serve as mechanical stop

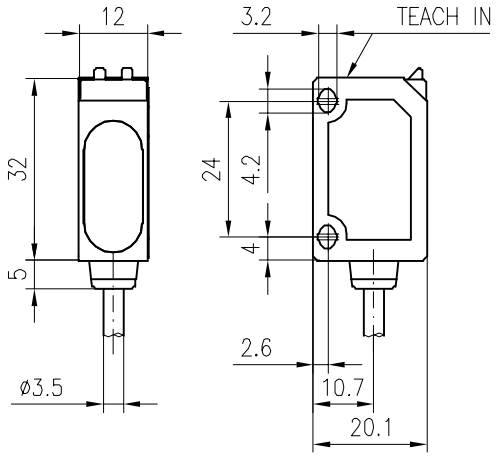
Switch mounted on mobile carrier



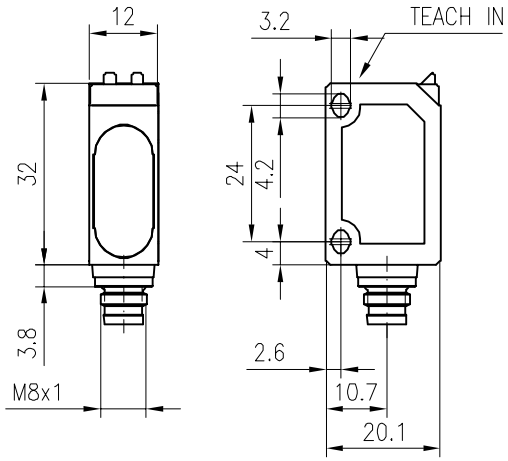
Any repetitive flexing of the cable should be avoided

Dimensions

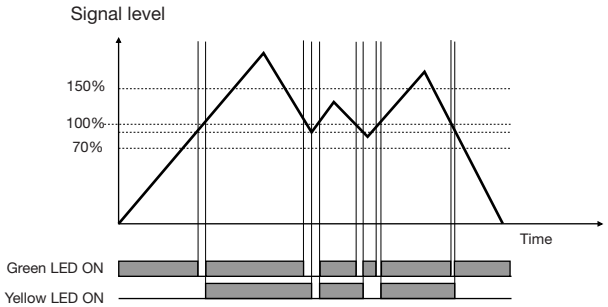
Cable version



Plug version

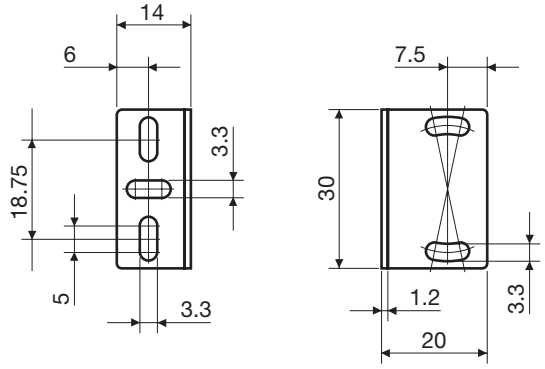


Signal Stability Indication



Accessories

Mounting bracket APD32-MB3



For further information refer to “Accessories”

Delivery Contents

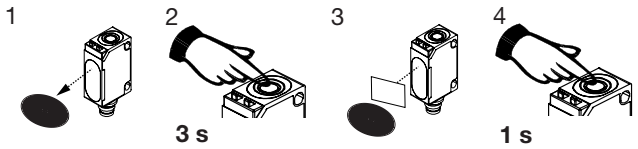
- Photoelectric switch: LD 32 CNP 10
- Installation instruction
- **Packaging:** Cardboard box

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Adjustment

Sensitivity adjustment, with static object (needed for transparent objects only)

1. Line up the sensor with the reflector. Yellow LED and green LED are ON.
2. Press the button for 3 s until both LED's flash simultaneously (the first switching point is stored).
3. Place the object in the detection area.
4. Press the button for 1 s.
   a) The green LED flashes and stays ON: the second switching point is stored, and the sensor is ready to operate.
   b) Both LED's flash simultaneously: the sensor cannot detect the object, no switching points are stored.



Adjustment to maximum sensitivity

1. Line up the sensor with the reflector. Press the button for 3 s until both LED's flash simultaneously.
2. Press the button again for 1 s (without object). The sensor is set to maximum sensitivity.

Sensitivity adjustment, with a running process (needed for transparent objects only)

1. Line up the sensor with the reflector. Green LED is ON. At this stage the status of the yellow LED can be ignored.
2. The running process must be the only "object" within the detection area. Press the button for 3 s until both LED's flash simultaneously.

   3 s

3. Press the button for at least the duration of one process cycle.

   1 cycle

   a) The green LED flashes and stays ON: both switching points have been stored, and the sensor is ready to operate.
   b) Both LED's flash simultaneously: the sensor cannot detect the object, no switching points are stored.

Programming of make and break switching function

1. Press the button for 13 s. **13 s**
   Both LED's flash alternately.
2. Release the button: the green LED flashes.
3. While the green LED flashes, the output is inverted each time the button is pressed. This is indicated by the yellow LED.
   When the button is not pressed for 10 s, the current output function is stored.
   The sensor is now ready for operation.

Default setting

1. Cover light emitter and receiver: Press the button for 3 s, until both LED's flash simultaneously. **3 s**
2. Keep light emitter and receiver covered:
   Press the button for 1 s. **1 s**
   The sensor is set to maximum sensitivity.

NB! The Teach Input (2 WH) will work similarly to the push button, active High.

Specifications are subject to change without notice (10.02.06)