en 04-2015/09   50117574

Änderungen vorbehalten • DS_L28_en_50117574.fm

0 … 15m

10 - 30 V DC	⊓⊓⊓⊓⊓ 500 Hz

- Throughbeam photoelectric sensor with clearly visible red light and high performance reserve
- Fast alignment through *brightVision®*
- Universal option for M18 hole mounting at the front and connector side
- Easy through-hole assembly with anti-rotation protection for mounting nuts on the housing
- Full control through green and yellow indicator LEDs
- Robust, glass fiber reinforced plastic housing acc. to IP 67 for industrial application
- Deactivation output for testing and interlinking of the sensor
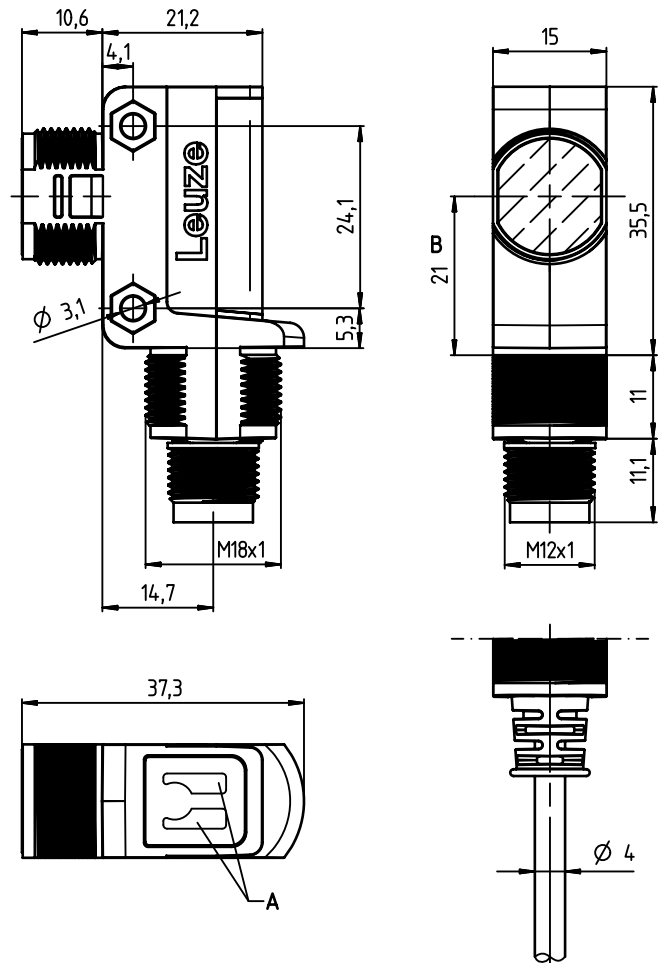- Complementary outputs for light/dark switching

CE   c(UL)us LISTED

IEC 60947…   IEC 60947…   ⚉ III   IP 67

Accessories:

(available separately)

- Mounting systems (BTU 200 ..., BT 200…, BTU D18…)
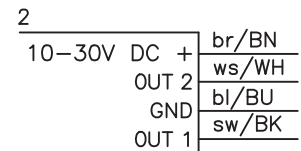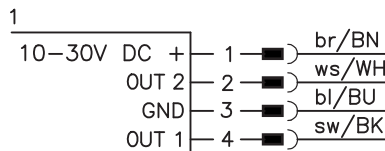- M12 connectors (KD …)
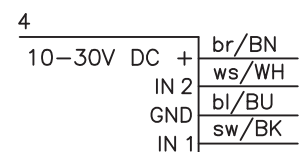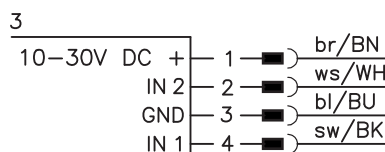- Ready-made cables (K-D …)

Dimensioned drawing

A   Indicator diodes
B   Optical axis

Electrical connection

Receiver

1		br/BN
10–30V DC +	1	br/BN
OUT 2	2	ws/WH
GND	3	bl/BU
OUT 1	4	sw/BK

2		br/BN
10–30V DC +		br/BN
OUT 2		ws/WH
GND		bl/BU
OUT 1		sw/BK

Transmitter

3		br/BN
10–30V DC +	1	br/BN
IN 2	2	ws/WH
GND	3	bl/BU
IN 1	4	sw/BK

4		br/BN
10–30V DC +		br/BN
IN 2		ws/WH
GND		bl/BU
IN 1		sw/BK

Specifications

Optical data
Typ. operating range limit [1]	0 … 15m
Operating range [2]	0 … 10m
Light source	LED (modulated light)
Wavelength	620nm (visible red light)

Timing
Switching frequency	500Hz
Response time	1ms
Delay before start-up	≤ 300ms

Electrical data
Operating voltage U_B [3]		10 … 30VDC
Residual ripple		≤ 15% of U_B
Open-circuit current		≤ 15mA
Switching output	…/4P…	2 PNP transistor outputs
		pin 2: PNP dark switching, pin 4: PNP light switching
	…/2N…	2 NPN transistor outputs
		pin 2: NPN dark switching, pin 4: NPN light switching
Switching input	…/9D…	2 deactivation inputs
		pin 2: transmitter active when not connected or with HIGH signal
		pin 4: transmitter active when not connected or with LOW signal
Signal voltage high/low		≥ (U_B-2V)/≤ 2V
Output current		max. 100mA [4]

Indicators
Green LED	ready
Yellow LED	light path free
Yellow LED, flashing	light path free, no performance reserve

Mechanical data
Housing	plastic, glass fiber reinforced
Optics cover	plastic
Weight	25g with M12 connector
	75g with 2m cable
Connection type	M12 connector, 4-pin
	cable 2m, 4x0.20mm²

Environmental data
|	
Ambient temp. (operation/storage)	-40°C … +60°C/-40°C … +70°C
Protective circuit [5]	2, 3
VDE safety class	III
Protection class	IP 67
Light source	free group (in acc. with EN 62471)
Standards applied	IEC 60947-5-2
Certifications	UL 508, C22.2 No.14-13 [3] [6]

1) Typ. operating range limit: max. attainable range without performance reserve
2) Operating range: recommended range with performance reserve
3) For UL applications: for use in class 2 circuits according to NEC only
4) Sum of the output currents for both outputs, 50mA when ambient temperatures > 40°C
5) 2=polarity reversal protection, 3=short circuit protection for all outputs
6) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min,
   in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

Tables

0	10.0	15.0

☐ Operating range [m]
☐ Typ. operating range limit [m]

Diagrams

Typ. response behavior

Misalignment y [mm]

Distance x [m]
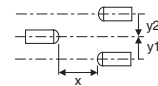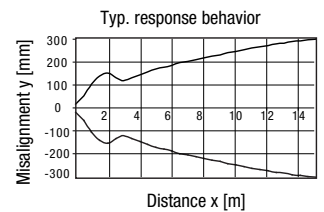
Remarks

Operate in accordance with intended use!

↳ This product is not a safety sensor and is not intended as personnel protection.
↳ The product may only be put into operation by competent persons.
↳ Only use the product in accordance with the intended use.

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

			Designation	Part no.
Transmitter	**With 4-pin M12 connector**	2 deactivation inputs (pin 4 = IN1, pin 2 = IN2)	LS 28/9D-M12	50117928
	With cable, cable length 2m	2 deactivation inputs (pin 4 = IN1, pin 2 = IN2)	LS 28/9D	50117929
Receiver	**With 4-pin M12 connector**	Pin 4: PNP light switching, pin 2: PNP dark switching	LE 28/4P-M12	50117930
		Pin 4: NPN light switching, pin 2: NPN dark switching	LE 28/2N-M12	50117932
	With cable, cable length 2m	Pin 4: PNP light switching, pin 2: PNP dark switching	LE 28/4P	50117931
		Pin 4: NPN light switching, pin 2: NPN dark switching	LE 28/2N	50117933

Part number code

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L E 2 8 / 4 P - M 1 2
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Operating principle

LS	Throughbeam photoelectric sensor, transmitter
LE	Throughbeam photoelectric sensor, receiver

Series

28	28 Series

Switching output/function /OUT1OUT2 (OUT1 = Pin 4, OUT2 = Pin 2)

4	PNP light switching
P	PNP, dark switching
2	NPN, light-switching
N	NPN dark switching
9	Input for transmitter deactivation (deactivation with HIGH signal)
D	Input for transmitter deactivation (deactivation with LOW signal)
X	Pin not used

Electrical connection

-M12	M12 connector, 4-pin
N/A	Cable, standard length 2000 mm