Dimensions

Transmitter Receiver

Terminal compartment

Transmitter Receiver

65.5
26
8
ø5
25.5
88
62
16
24
6
11
25
5
2
63
9.6

LED-Anzeige red alignment aid

Dovetail mount

Indicator of detection range for OFF delay and one shot

DIP-switch

Indicator of detection range for ON delay

Relay NO
Relay NC
Relay center contact
12 ... 240 V AC/DC
12 ... 240 V AC/DC

12 ... 240 V AC/DC
12 ... 240 V AC/DC

LED indicator: switching state

Light/dark switch

LED indicator: switching state

LED indicator: operation

Sensitivity adjuster

Model Number

LA28/LK28-Z-F2/31/116

Thru-beam sensor
with terminal compartment

Features

- Universal series with highly versatile fields of use
- Resistant against noise: reliable operation under all conditions
- Highly visible LED as alignment aid in receiver optics
- Programmable time function GAN, GAB, IAB as well as GAN-IAB and GAN-GAB as double function

Product information

The series 28 family of sensors can be universally used. It has a large range of models that allows it to be integrated into any automation environment. The sensors are contained in sturdy water resistant plastic housings with multiple fastening options and scratch resistant optical cover. Features such as a timer function, and functions including a light/dark switch, sensitivity adjuster and highly visible status LEDs make for less effort on the part of the user and streamline installation, setup and operation. Just about any task associated with positioning, moving, conveying and monitoring can be accomplished with these sensors.

Electrical connection

Emitter

BK	n.c.
WH	n.c.
GY	n.c.
GY	n.c.
BU	~/0 V
BU	
BN	~/+UB
BN	

12V ... 240 V AC/DC

Receiver

BK	NO
WH	NC
GY	C
GY	C
BU	~/0 V
BU	
BN	~/+UB
BN	

12V ... 240 V AC/DC

The relay-functions "NC" and "NO" bear on the switching mode "Dark-ON". This complies to the default setting of the light/dark switch (factory setting).

Indicators/operating means

1	Operating display green
2	Switch state yellow
3	Bright/dark switch
4	Sensitivity adjustment
5	Receiver
6	Transmitter

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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1

Technical data

System components
Emitter	LA28-F2/116
Receiver	LK28-Z-F2/31/116

General specifications
Effective detection range	0 ... 65 m
Threshold detection range	90 m
Light source	LED
Light type	modulated visible red light
Alignment aid	LED red (in receiver lens) illuminated constantly: beam is interrupted, flashes: reaching switching point, off: sufficient stability control
Transmitter frequency	F2 = 30 kHz
Diameter of the light spot	approx. 1.3 m at 65 m
Angle of divergence	Emitter 1.2°, Receiver 5°
Ambient light limit	50000 Lux

Functional safety related parameters
$MTTF_d$	490 a
Mission Time (T_M)	20 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means
Operation indicator	LED green
Function indicator	LED yellow: 1. LED lit constantly: signal > 2 x switching point (function reserve) 2. LED flashes: signal between 1 x switching point and 2 x switching point 3. LED off: signal < switching point
Control elements	sensitivity adjustment (Adjustment to < 25% of the effective operating range) , Light-on/dark-on changeover switch

Electrical specifications
Operating voltage	U_B	12 ... 240 V AC/DC
Power consumption	P_0	≤ 3.5 VA

Output
Switching type		light/dark on, switchable . (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)
Signal output		Relay, 1 alternator
Switching voltage		max. 250 V AC/DC
Switching current		max. 2 A
Switching power		DC: max. 50 W AC: max. 500 VA
Switching frequency	f	25 Hz
Response time		20 ms
Timer function		ON delay (GAN), OFF delay (GAB), one shot (IAB), ON delay-OFF delay (GAN-GAB), programmable adjustment range 0.1 ...10 s

Conformity
Product standard	EN 60947-5-2

Ambient conditions
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F)
Storage temperature	-40 ... 75 °C (-40 ... 167 °F)

Mechanical specifications
Housing width	25.8 mm
Housing height	88 mm
Housing depth	65.5 mm
Degree of protection	IP67
Connection	terminal compartment with 8 spring-loaded terminals for wire cross section 0.5 ... 1.5 mm^2 , Insulation stripping 7.5 ... 8.5 mm , M16 x 1.5 cable gland
Material	
Housing	Plastic ABS
Optical face	Plastic pane
Mass	200 g (emitter and receiver)

Approvals and certificates
EAC conformity	TR CU 020/2011 TR CU 004/2011
Protection class	II, rated insulation voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1 Output circuit insulated from control circuit in accordance with IEC 61140. Caution! The protection class 2 is only valid when the terminal compartment is closed.

Accessories

OMH-05
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-07
Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-21
Mounting bracket

OMH-22
Mounting bracket

OMH-RLK29
Mounting bracket

OMH-MLV11-K
dove tail mounting clamp

OMH-RLK29-HW
Mounting bracket for rear wall mounting

OMH-RL28-C
Weld slag cover model

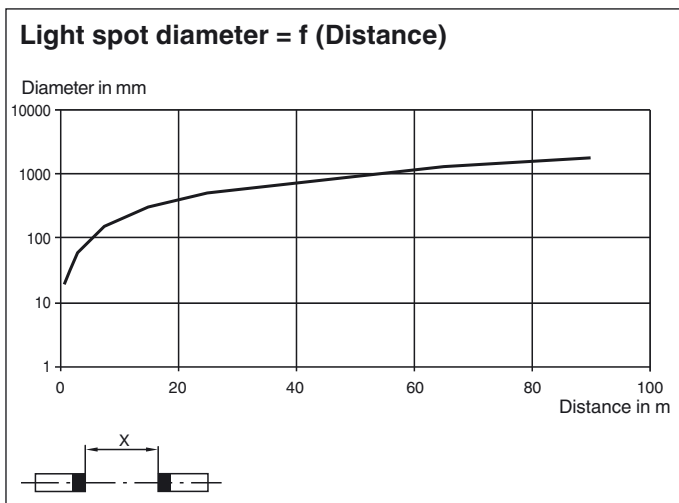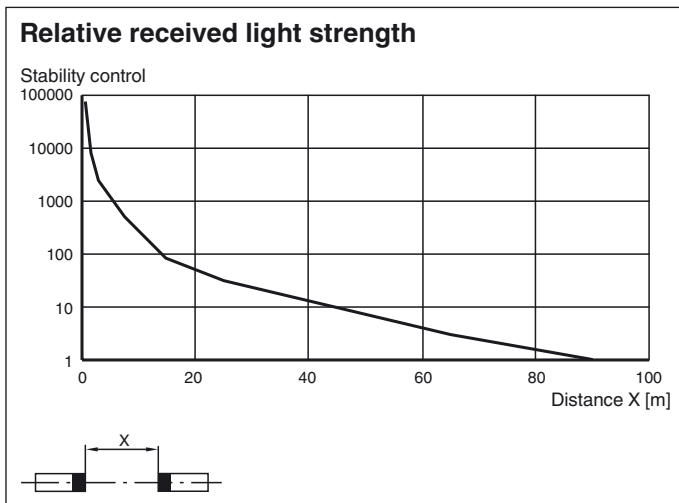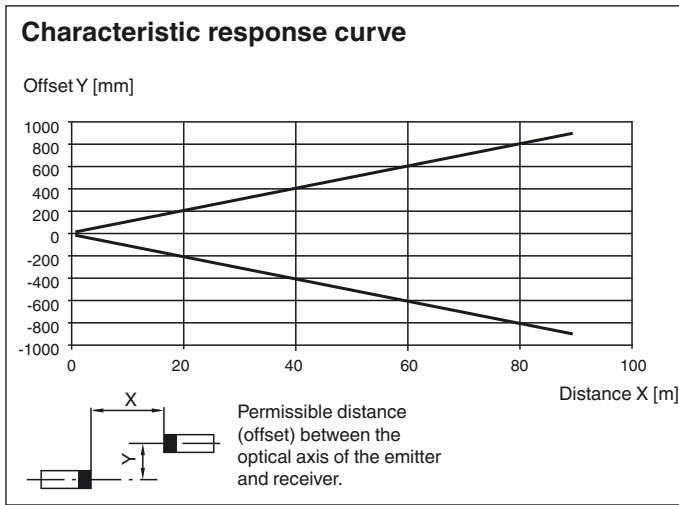Other suitable accessories can be found at www.pepperl-fuchs.com
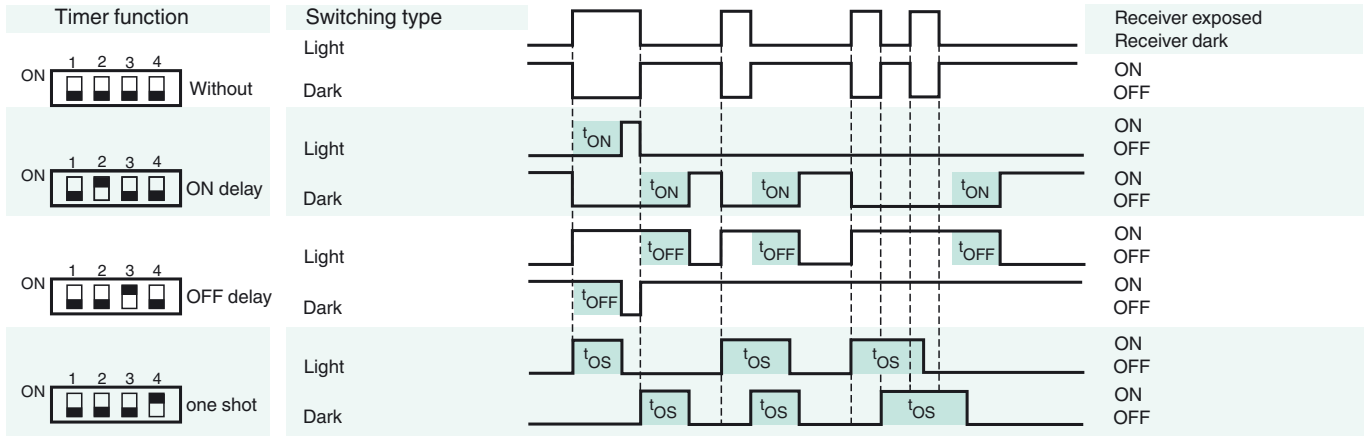
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UL approval	cULus Listed
	Caution: This equipment is considered as open-type equipment. It must be mounted within an enclosure, that is suitably designed for protection against internal fire and personal injury resulting from accessibility to live parts according UL 508.
CCC approval	Certified by China Compulsory Certification (CCC)

Curves/Diagrams

Characteristic response curve

Offset Y [mm]

Permissible distance (offset) between the optical axis of the emitter and receiver.

Relative received light strength

Stability control

Distance X [m]

Light spot diameter = f (Distance)

Diameter in mm

Distance in m

Timer functions

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Timer function	Switching type		Receiver exposed / Receiver dark

Timing diagrams:

- **Without** (DIP switch 1 2 3 4, ON)
  - Light: ON/OFF
  - Dark: ON/OFF

- **ON delay** (DIP switch 1 2 3 4, ON)
  - Light: t_{ON} — ON/OFF
  - Dark: t_{ON}, t_{ON}, t_{ON} — ON/OFF

- **OFF delay** (DIP switch 1 2 3 4, ON)
  - Light: t_{OFF}, t_{OFF}, t_{OFF} — ON/OFF
  - Dark: t_{OFF} — ON/OFF

- **one shot** (DIP switch 1 2 3 4, ON)
  - Light: t_{OS}, t_{OS}, t_{OS} — ON/OFF
  - Dark: t_{OS}, t_{OS}, t_{OS} — ON/OFF

Time t_{ON}, t_{OFF} and t_{OS} are adjustable from 0.1 to 10 seconds.
The Light-/Dark-Switch (Left, outer switch) is shown in the "Dark ON" position.

Type	Description	Notes
-Z	OFF delay timer	Adjustable time interval (0.1 s - 10 s)
	one shot timer	
	ON delay timer	
	ON delay timer / OFF delay timer	
	ON delay timer / one shot timer	

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

4