



Background suppression sensor

RL28-8-H-2000-IR-Z/47/112

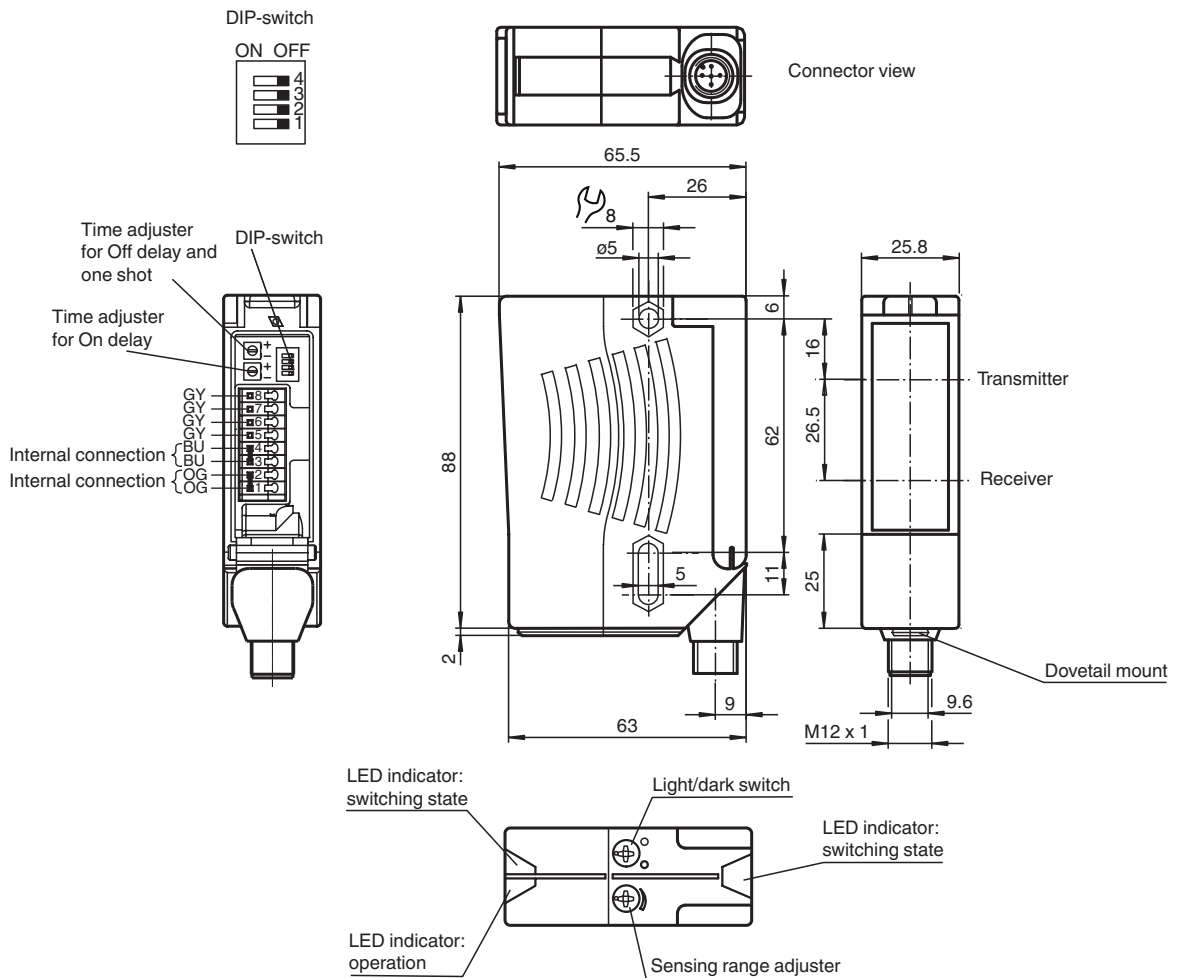


- Ultra bright LEDs for power on and switching state
- Minimal black-white difference through the infrared transmission LED
- Programmable time function GAN, GAB, IAB and GAN-IAB as double function
- Not sensitive to ambient light, even with energy saving lamps
- Waterproof, degree of protection IP67
- Protection class II

Background suppression sensor



Dimensions



Release date: 2021-11-11 Date of issue: 2021-11-11 Filename: 421198_eng.pdf

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

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PF PEPPERL+FUCHS

Technical Data

General specifications		
Detection range		20 ... 2000 mm
Detection range min.		20 ... 200 mm
Detection range max.		20 ... 2000 mm
Background suppression		max. + 10 % of the upper limit of the detection range
Light source		IRED
Light type		modulated infrared light , 880 nm
Black-white difference (6 %/90 %)		< 40 %
Diameter of the light spot		approx. 70 mm at a distance of 2000 mm
Angle of divergence		transmitter 2° receiver 2°
Ambient light limit		50000 Lux
Functional safety related parameters		
MTTF _d		720 a
Mission Time (T _M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green
Function indicator		2 LEDs yellow ON: object inside the scanning range OFF: object outside the scanning range
Control elements		Sensing range adjuster , Light-on/dark-on changeover switch
Electrical specifications		
Operating voltage	U _B	10 ... 30 V DC
Ripple		10 %
No-load supply current	I ₀	≤ 40 mA
Output		
Switching type		light/dark on, switchable (selectable, light/dark switching is only activated if the receiver has 'dark on' selected.)
Signal output		2 PNP, complementary, short-circuit protected, reverse polarity protected , open collectors
Switching voltage		max. 30 V DC
Switching current		max. 200 mA
Switching frequency	f	250 Hz
Response time		2 ms
Timer function		ON delay (GAN), OFF delay (GAB), one shot (IAB), ON delay-one shot (GAN-IAB), programmable adjustment interval 0.02 s ... 1 s
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
EAC conformity		TR CU 020/2011
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
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		5-pin, M12 x 1 connector, 90° rotatable
Material		
Housing		Plastic ABS
Optical face		plastic
Connector		metal

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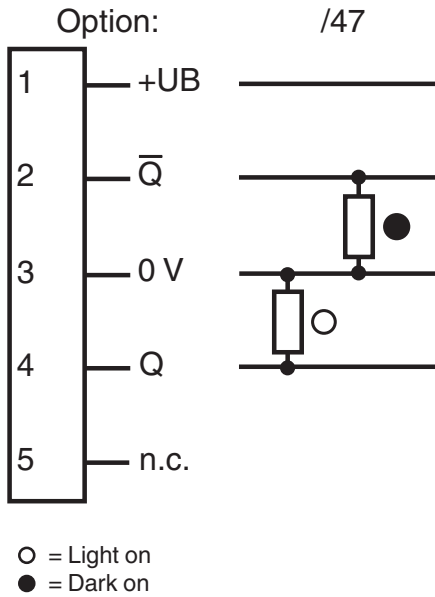
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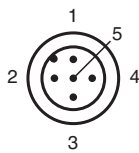
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Mass	approx. 100 g
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Connection Assignment



Connection Assignment

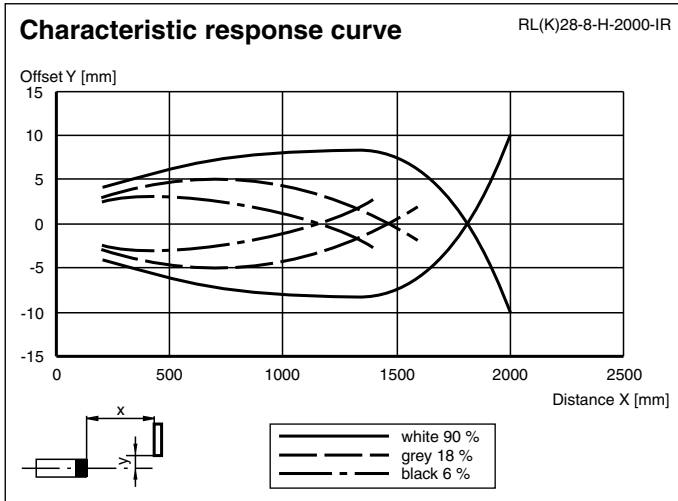


Wire colors in accordance with EN 60947-5-2

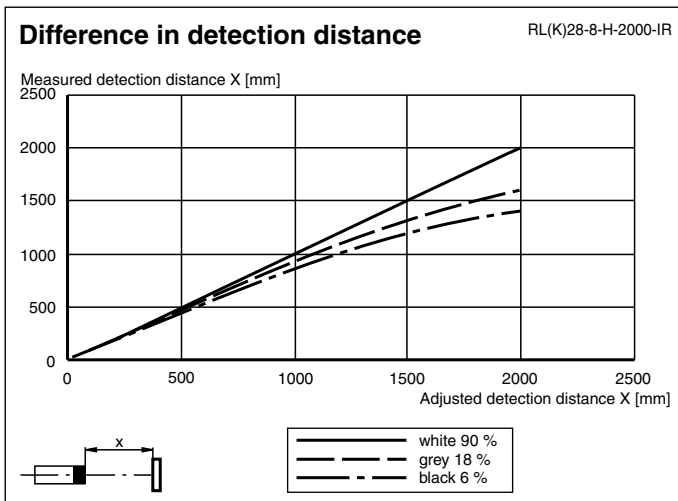
1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)
5	GY	(gray)

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Characteristic Curve



Characteristic Curve



Application



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Mounting

Zeitfunktionen
Fonctions de temporisation
Funzioni di temporizzazione

Timer functions
Funciones de tiempo

Zeitfunktion	Schaltungsart	Empfänger belichtet Empfänger dunkel
ON Ohne	Hell Dunkel	EIN AUS
ON GAN	Hell Dunkel	EIN AUS EIN AUS
ON GAB	Hell Dunkel	EIN AUS EIN AUS
ON IAB	Hell Dunkel	EIN AUS EIN AUS

Die Zeit t_{AN} , t_{AB} und t_{IAB} sind von 0,02 - 1 Sekunde einstellbar.
Der H/D-Schalter (Schalter links außen) ist in Stellung Dunkelschaltung dargestellt.

Timer function	Switching type	Receiver exposed Receiver dark
ON Without	Light Dark	ON OFF
ON ON delay	Light Dark	ON OFF ON OFF
ON OFF delay	Light Dark	ON OFF ON OFF
ON one shot	Light Dark	ON OFF ON OFF

Time t_{ON} , t_{OFF} and t_{OS} are adjustable from 0.02 to 1 seconds.
The Light/Dark-Switch (Left, outer switch) is shown in the "Dark ON" position.

Fonction de temporisation	Mode de commutation	Récepteur éclairé Récepteur non éclairé
ON sans	clair foncé	activé désactivé
ON GAN	clair foncé	activé désactivé activé désactivé
ON GAB	clair foncé	activé désactivé activé désactivé
ON IAB	clair foncé	activé désactivé activé désactivé

Les temps t_{AN} , t_{AB} et t_{IAB} sont réglables de 0,02 ... 1 s.
Le commutateur H/D (commutateur à l'extrême gauche) est représenté en position commutation obscur.

Función de tiempo	Modo de conmutación	Receptor recibiendo luz Receptor oscuro
ON Sin	Claro Oscuro	ON OFF
ON GAN	Claro Oscuro	ON OFF ON OFF
ON GAB	Claro Oscuro	ON OFF ON OFF
ON IAB	Claro Oscuro	ON OFF ON OFF






El tiempo t_{AN} , t_{AB} y t_{IAB} es ajustable entre 0,02 y 1 segundos.
El conmutador H/D (conmutador exterior izquierdo) está representado en posición de reducción de la luz.

Funzione tempo	Modo di commutazione	Ricevitore illuminato Ricevitore scuro
ON Senza	Chiaro Scuro	Un Disattivo
ON GAN	Chiaro Scuro	Un Disattivo Un Disattivo
ON GAB	Chiaro Scuro	Un Disattivo Un Disattivo
ON IAB	Chiaro Scuro	Un Disattivo Un Disattivo

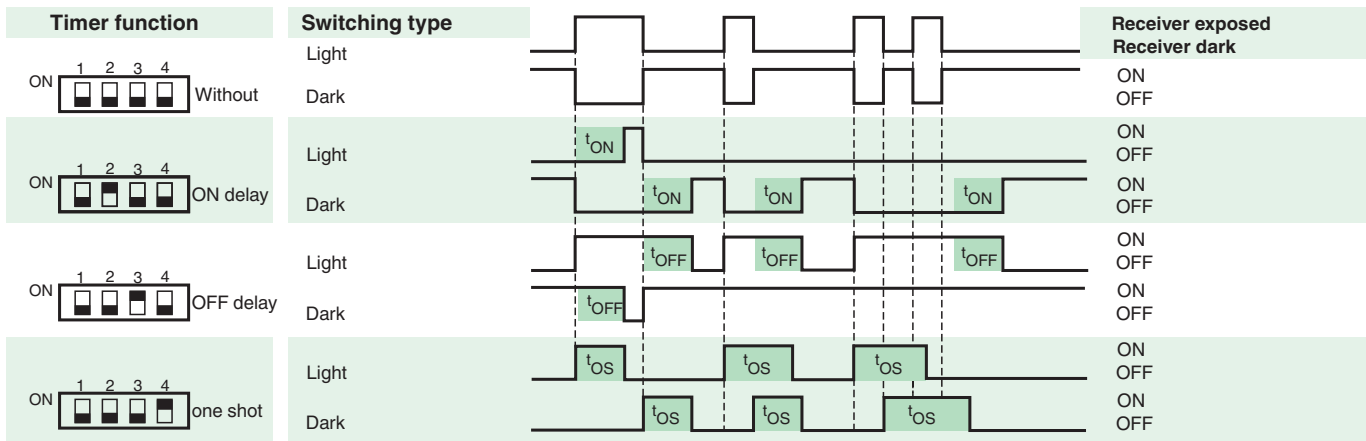
i tempi t_{AN} , t_{AB} e t_{IAB} sono regolabili tra 0,02 s e 1 s.
L'interruttore chiaro/scuro (interruttore sul lato esterno sinistro) è rappresentato in posizione di azionamento in scuro.

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Accessories

	OMH-05	Mounting aid for round steel \varnothing 12 mm or sheet 1.5 mm ... 3 mm
	OMH-21	Mounting bracket: mounting aid for sensors in the RL* series
	OMH-22	Mounting aid for RL* series
	OMH-RLK29-HW	Mounting bracket for rear wall mounting
	OMH-RL28-C	Weld slag cover model

Timer functions



Time t_{ON} , t_{OFF} and t_{OS} are adjustable from 0.02 to 1 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 (0.02 s - 1 s)
	one shot timer	
	ON delay timer	
	ON delay timer / OFF delay timer	
	ON delay timer / one shot timer	

Additional information

Intended use:

The transmitter and receiver are located in the same housing for direct detection sensors with background masking. Marking of objects outside the detection range is achieved by arranging the angle between the transmitter and receiver (2 receiver elements).

Objects are detected independently of their surface structures, brightness and colour, as well as the brightness of the background.

Mounting instructions:

The sensors can be fastened directly with fixing screws or with a support bracket (not included with delivery).

The surface underneath must be flat to prevent the housing from moving when it is tightened into position. We recommend securing the nut and screw in place with spring washers to prevent the sensor from going out of adjustment.

Adjustment:

After the operating voltage is applied, the LED is lit green.

Align the sensor to the background. If the yellow LED is lit, the detection range should be reduced with the detection range adjuster until the yellow LED goes out.

Object direction:

Place the object to be detected at the desired maximum detection range and align the light spot to it. If the object is detected, the yellow LED lights up.

If it does not light up, the detection range must be adjusted on the potentiometer until it lights up when an object is detected.

Cleaning:

We recommend cleaning the optical surface and checking the screwed connection and other connections at regular intervals.

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